



Environmental Challenges
BUSINESS SOLUTIONS®

P: 281-240-5200 F: 281-240-5201 www.earthcon.com

Stafford, Texas 77477

Suite 390

February 5, 2013

Ms. Mary C. Patton, P.E.
Director of Regulatory - NMSD
Range Production Company
100 Throckmorton Street, Suite 1200
Fort Worth, Texas 76102

Re: Implementation Report

Third Quarterly Sampling Event – November/December 2012 Quarterly Residential Well Sampling Project Parker County, Texas EarthCon Project No. 02.20120200.00

Dear Ms. Patton:

EarthCon Consultants, Inc. (EarthCon) is pleased to provide Range Production Company (Range) this report documenting implementation of the Third Quarterly Sampling Event of the *Quarterly Residential Well Sampling Project in Parker County, Texas*.

Activities were conducted in accordance with EarthCon's November 14, 2012 *Revised Scope of Work and Cost Estimate for Environmental Consulting Services* (approved on November 15, 2012) and the *Final Quarterly Residential Well Sampling Work Plan*, dated May 7, 2012 (May 2012 Work Plan, see **Attachment 1**) submitted electronically to Range on May 8, 2012. This report specifically documents collection of water samples from residential wells and coordination with analytical laboratories; evaluation and interpretation of associated data are not part of the scope of work, and hence, are not discussed in this report.

1.0 PREPARATORY ACTIVITIES

Upon receiving approval from Range to implement the Third Quarterly Event, EarthCon contacted Accutest Laboratories (Accutest) and Milco Safety Rental to coordinate delivery to EarthCon's offices of needed sample containers, shipping materials and sampling equipment; coordination of delivery of sample containers and shipping materials from Isotech Laboratories (Isotech) was conducted through Mr. Alan Kornacki of Weatherford, a Range consultant.

EarthCon was informed by Range that sampling was to be conducted only on wells for which the property owner had returned an executed consent form to Range; this resulted in the number of wells to be sampled during the third quarterly sampling event to total 16 wells (see **Table 1**). Mary Patton of Range coordinated scheduling of the sampling activities with the property owners and a final schedule was received by EarthCon on November 27, 2012.



Accutest Laboratories Gulf Coast, Inc.		Dec 28, 2012 17:58 pm							
Job Number:	TC20881								
Account:	EarthCon Consultants								
Project:	Quarterly Well Sampling, Parker County, Texas								
Project Number:	3rd Quarter / WW25-Mat								
	Legend:	Hit							
Client Sample ID:		WW25-MAT-120212							
Lab Sample ID:		TC20881-1							
Date Sampled:		12/02/2012							
Matrix:		Ground Water							
GC/MS Volatiles (SW846 8260B)									
Benzene	mg/l	0.00034 U							
Toluene	mg/l	0.00033 U							
Ethylbenzene	mg/l	0.00032 U							
Xylene (total)	mg/l	0.00087 U							
GC Volatiles (RSKSOP-147/175)									
Methane	mg/l	0.00676							
Ethene	mg/l	0.00050 U							
Ethane	mg/l	0.00081 J							
Propane	mg/l	0.00075 U							
Isobutane	mg/l	0.00075 U							
Butane	mg/l	0.00075 U							





EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW25-Mat

Accutest Job Number: TC20881

Sampling Date: 12/02/12



EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 27



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Laboratory Director





10165 Harwin Drive Houston, TX 77036 Tel: 713-271-4700

www.accutest.com

Friday, December 28, 2012

EarthCon Consultants 4800 Sugar Grove, Suite 420 Stafford, TX 77477 ATTN: Gabriela Floreslovo

RE: Accutest job TC20881 Reissue

Dear Ms. Floreslovo:

The final report for job number TC20881 has been revised to add a "J" flag to the Ethane result.

I apologize for any inconvenience. Please feel free to contact me if I can be of further assistance.

Sincerely,

Elessa Sommers

Elessa Sommers Project Manager



Sections:

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Sample Summary

EarthCon Consultants

Job No:

TC20881

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW25-Mat

Sample Number	Collected Date		Received	Matr Code		Client Sample ID
TC20881-1	12/02/12	09:27	12/04/12	AQ	Ground Water	WW25-MAT-120212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20881

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 9:39:20 AM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20881. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK578

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20506-1MS, TC20506-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20881

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20881-1	WW25-MAT-1202	212				
Methane Ethane		0.00676 0.00081 J	0.00050 0.0010	0.00030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175



Sample Results	
Report of Analysis	



Report of Analysis

Client Sample ID: WW25-MAT-120212

 Lab Sample ID:
 TC20881-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K13195.D	1	12/06/12	EM	n/a	n/a	VK578
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	109% 107% 105% 103%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WW25-MAT-120212

 Lab Sample ID:
 TC20881-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
Run #1	SS005072.D	1	12/07/12	LT	n/a	n/a	GSS233	
Run #2								

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00676	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00081	0.0010	0.00050	mg/l	J
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE → OF ✓

Laboratories													FE	D-EX T	racking	#				Bottle O	rder Con	trol#			
Laboratories			10165 Har TEL. 71	3-271-470	0 FAX:	713-2							Ac	cutest C	Quote #					Accutes	Job#	-1/	7	<i>V</i> 39	221
Client / Reporting Information			Project	www.a	tion	520											Pan		t a d	Ana	lveo	_11	<u> </u>		Matrix Codes
Company Name	Project Name:	The state of the s		o	Lion	Per	COTH COLUMN	CHOIR MUSICI	10000000	100001111	People Oxograp	Detachten;	CHEPG.	- 1			V C Y	ues	leu	Ana	yse	-			IVIAUIX COUES
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EarthCon Consultants, Inc. Street Address	Third Quarte Street	rly Well Sampli	ng, Parker (County,	Texas	1200001	5032520	10070329333	19/11/19/2	2566	20000497	0110790E	N. GARS		Ethene, Isobutane, Methane, -175										DW - Drinking Water
4800 Sugar Grove Blvd., Suite 390									-			- CONTRACTOR	0012000	- 13	ĭ ĕ	.									GW - Ground Water WW - Water
City State Zip	City		State	Compan	nformatio y Name	n(m	атеге	ent tror	п кер	ort to	0}		-	- 1	je,										SW - Surface Water
Stafford TX 77477														- 1	Ē										SO - Soil SL- Sludge
Project Contact E-mail	Project #			Street Ac	ddress					_			\dashv	- 15	စ္စ										SED-Sediment OI - Oil
Gabriela Floreslovo														- 17	e,										LIQ - Other Liquid
Phone # Fax #	Client Purchase	Order#		City				Sta	ate			Zip			퉏										AIR - Air SOL - Other Solid
281-201-3513														li	ᄪᄀ										WP - Wipe
Sampler(s) Name(s) Phone #	Project Manage	r		Attention	i:									_	RS an										FB-Field Blank
3B, SH, NM		Colle							-					9 li	Ethane, E by RSK-										
		Golle	ction	т —		-	ΙΞΙ	Number	of pres	served	Bottles	- W	Н	8	la e										
Accutest Sample # Field ID / Point of Collection					# of	_ 2	5 8	804	빌	Ol Wate	5 .	NaHSO	OTHER	BTEX 8260B	Butane, E Propane I										
	Date	Time	Sampled By	Matrix	bottles	후 :	ž ž	를 모	Ñ	WE CEN	TS T	R N	5	m (m o										LAB USE ONLY
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Turnaround Time (Business days)			l.				Data D	Delivera	abie I	nforn	nation		- 55					Mary St.	Com	ments	Speci	al Instru	ctions	2143700	(C. 1)
X Standard	Approved By (Acc	utest PM): / Date:			Commerc						TRI						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							_	
5 Day RUSH					Commerc	ial "B	" (Le	vel 2)		Ξ		D For	mat												
4 Day RUSH					FULT1 (L						Ot	her		_											
3 Day RUSH 2 Day RUSH				_	REDT1 (-										
1 Day EMERGENCY				1 🗀 '	Commerc																				
Emergency & Rush T/A data available VIA Lablink		, Q		1				ercial "A ercial "E			-	Cumm			}										
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Date Time:	1538	Received By?	\sim				\checkmark	Relinqu	uished	By:							Date Ti	ne:		Receive	d By:				
Relinquished by Sampler: Date Time:	1-	Received By:				/	-	2												2					
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5		5												ot intact							_				

TC20881: Chain of Custody
Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: To	C20	881		Client:	EARTHCC	N CO	NSI	ULTAI	NTS	Project:	3RD QTR WEI	L SAMPI	ING,	PARKE	R COUNTY,
Date / Time Received: 12	2/4/2	2012			Delivery N	/letho	d:		Client	Airbill #'s:					
No. Coolers: 1		Ther	m ID:	R6						Temp Adjust	ment Factor:	0.2			
Cooler Temps (Initial/Adju	ıste	d): <u>#</u>	1: (2.2/2	<u>'.4)</u>											
Cooler Security	Υ	or N	<u>L</u>			Υ	or	N	Sample Integr	rity - Documer	<u>itation</u>	<u> Y</u>	or	N	
	✓		٠.	3. COC P		✓			1. Sample labe	ls present on bo	tles:	✓			
2. Custody Seals Intact:	✓] 4. 8	Smpl Date	es/Time OK	\checkmark			2. Container lab	beling complete:		✓			
Cooler Temperature		Υ	or N						3. Sample cont	ainer label / CO	agree:	✓			
1. Temp criteria achieved:		~							Sample Integ	rity - Conditio	n	<u>Y</u>	or	N	
2. Cooler temp verification:			ared Gu	n					Sample recv	d within HT:	_	✓			
3. Cooler media:		le	ce (bag)						2. All containers	s accounted for:		✓			
Quality Control Preservat	ion	Υ	or N	N/A	<u>.</u>	WTB	5	STB	3. Condition of	sample:			Inta		
1. Trip Blank present / cooler	:	✓				✓			Sample Integ	ırity - Instructi	ons	Υ	or	N	N/A
2. Trip Blank listed on COC:			✓						1. Analysis reg	quested is clear:	<u></u>	<u> </u>		П	
3. Samples preserved proper	rly:	V							2. Bottles rece	ived for unspeci	ied tests			<u></u>	
4. VOCs headspace free:		V	П	П					3. Sufficient vo	olume recvd for a	nalysis:	✓			
		_	_						4. Compositing	g instructions cle	ar:				✓
									5. Filtering inst	tructions clear:					✓
Comments -Received trip bl	lank	not list	ed on CO	OC.											

TC20881: Chain of Custody

Page 1 of 3

Page 2 of 4







Problem Resolution

12/5/2012

Accutest Job Number: TC20881

CSR: Elessa Sommers Response Date:

Response: Trip blank is on separate report.

5.1

TC20881: Chain of Custody

Page 3 of 4







Sample Receipt Log

 Job #:
 TC20881
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20881-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20881-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20881-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20881-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20881-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20881-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst	IR6	2.2	0.2	2.4

TC20881: Chain of Custody

Page 4 of 4



Appendix A **Laboratory Data Package Cover Page**

This signature page, the laboratory review checklist, and the following reportable data:

TC20881 This data package consists of

₽	R1	Field chain-of-custody documentation		
	R2	Sample identification cross-reference) ;	
₽	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:	
		a)	Items consistent with NELAC 5.13 or ISO/IEC	2 17025 Section 5.10
		b)	dilution factors,	
		c)	preparation methods,	
		d)	cleanup methods, and	
		e)	if required for the project, tentatively identified	d compounds (TICs).
	R4	Surrogate recovery data including:		
		a)	Calculated recovery (%R), and	
		b)	The laboratory's surrogate QC limits.	
	R5	Test reports/summary forms for blank	samples;	
D	R6	Test reports/summary forms for labor	ratory control samples (LCSs) including:	
-		a) ´	LCS spiking amounts,	
		b)	Calculated %R for each analyte, and	
		c)	The laboratory's LCS QC limits.	
ū.	R7	•	natrix spike duplicates (MS/MSDs) including:	
•		a)	Samples associated with the MS/MSD clearly	/ identified
		b)	MS/MSD spiking amounts,	,,
		c)	Concentration of each MS/MSD analyte measures	sured in the parent and
		d)	Calculated %Rs and relative percent differen	•
		e)	The laboratory's MS/MSD QC limits	000 (RT 20), und
ū	R8	Laboratory analytical duplicate (if app	•	
	110	a)	The amount of analyte measured in the dupli	cate
		b)	The calculated RPD, and	cate,
		c)	The laboratory's QC limits for analytical dupli	catos
₽	R9	,	(Ls) and detectability check sample results for	
Ļ D	R10	Other problems or anomalies.	(LS) and detectability check sample results for	each analyte for each
·	ICIO	Other problems of anomalies.		
The Evcen	tion Report	for each "No" or "Not Reviewed (NR)"	item in Laboratory Review Checklist and for e	ach analyte matrix and
		, ,	ditation under the Texas Laboratory Accredita	
memou ioi	WillCit title i	aboratory does not note NELAC accre	unation under the rexas Laboratory Accredita	uon Fiogram.
		•	s laboratory data package. This laboratory is N	
			analytes, and matrices reported in this data p	
			I by the laboratory and is complete and technic	
			ne laboratory in the attached exception reports	
			observed by the laboratory as having the poter	
	ave been id	entified by the laboratory in the Labora	atory Review Checklist, and no information or	data have been knowingly
withheld.				
Check, if a	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by	•
[]		[X] TCEQ or [] on April 20	011. Any findings affecting the data in this labo	oratory data package are
			n. The official signing the cover page of the rep	
			data package and is by signature affirming the	
		is true.	add package and is by signature annihing the	above release statement
OA Manac	nor.	is true.		
QA Manag	_	Signaturo	Official Title (printed)	Data
Name (Prir	neu)	Signature	Official Title (printed)	Date
Dichard Da	odriauo z	≤ 100	Laboratory Director	12/12/2012
Richard Ro	Junguez	dame	Laboratory Director	12/12/2012



			HECKLIST: REPORTABLE					
Laboratory	/ Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
		Quarterly Well Sampling, Parker		l				
Project Na		County, Texas	Laboratory Project Number:	_	2088			
Reviewer		Anita Patel	Prep Batch Number(s):	GSS233, VK578 YES NO NA ³ NR ⁴ ER #				
# ¹	A ²	DESCRIPTION		YES	NO	NA	NR*	ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			andard conditions of sample acceptability	X				İ
		upon receipt?	. 126	- V				<u> </u>
		· · · · · · · · · · · · · · · · · · ·	anditions described in an exception report?	X	_			
R2	OI	Sample and quality control (QC) id			_			
		<u> </u>	-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-re	Х					
R3	OI	Test reports						
		Were samples prepared and analyze	X					
		Other than those results <mql, td="" were<=""><td>l x</td><td></td><td></td><td></td><td>İ</td></mql,>	l x				İ	
		standards?						
		Were calculations checked by a peer		X				<u> </u>
		Were all analyte identifications checked by a peer or supervisor?						<u> </u>
		Were sample detection limits reported		X				<u> </u>
			samples reported on a dry weight basis?	1	<u> </u>	X	<u> </u>	<u> </u>
		Were % moisture (or solids) reported		1	_	Χ	<u> </u>	<u> </u>
			latile analysis extracted with methanol per			Х		ĺ
	SW846 Method 5035?			-		Х		
	_	If required for the project, are TIC's reported?				_ ^		
R4	0	Surrogate recovery data	-410	V				
		Were surrogates added prior to extract		X				-
DE	01	Were surrogate percent recoveries in all samples within the laboratory QC limits? Test reports/summary forms for blank samples						
		Were appropriate type(s) of blanks ar						
		Were blanks analyzed at the appropri		X			-	
			ne entire analytical process, including	+^				-
		preparation and, if applicable, cleanu		X				İ
		Were blank concentrations <mql?< td=""><td>p procedures :</td><td>X</td><td></td><td></td><td></td><td><u> </u></td></mql?<>	p procedures :	X				<u> </u>
R6	OI	Laboratory control samples (LCS):		+^				
NO	UI.	Were all COCs included in the LCS?		Х				
			ire analytical procedure, including prep and					
		cleanup steps?	are arranytical procedure, including prep and	X				İ
		Were LCSs analyzed at required freq	uency?	X				
		Were LCS (and LCSD, if applicable)		X				
			data document the laboratory's capability to					
		detect the COCs at the MDL used to		X				5
		Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike						
		Were the project/method specified an		Х	П		Г	
		Were MS/MSD analyzed at the appro		X				
		Were MS (and MSD, if applicable) %		†	Х			4
		Were the MS/MSD RPDs within labor		X	Ė			Ė
R8	OI	Analytical duplicate data	•					
	-	Were appropriate analytical duplicate	s analyzed for each matrix?	Х	ı	l	ı	
		Were analytical duplicates analyzed a		X				
			ations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):	·					
	T -		e included in the laboratory data package?	Х				
			entration of the lowest non-zero calibration	X				
	Are unadjusted MQLs and DCSs included in the laboratory data package?							2
R10	OI	Other problems/anomalies	,		Х			
	T		ecial conditions noted in this LRC and ER?	Х				
			logy used to lower the SDL to minimize the	X				
			nder the Texas Laboratory Accreditation	T iii				
		*	nd methods associated with this laboratory	X				3
	1	data package?		1	l	1	l	1 -



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	/12/2	012				
Project Na		Quarterly Well Sampling, Parker Laboratory Project Number:		_	TC20881					
Reviewer	Name:	Anita Patel Prep Batch Number(s):					GSS233, VK578			
#1	A ²	DESCRIPTION		YES	ΙΝΟ	NA ³	NR⁴	ER#5		
S1	OI	Initial calibration (ICAL)								
			e response factors for each analyte within QC	\ \	П					
		limits?	•	X						
		Were percent RSDs or correlation co	efficient criteria met?	Х						
		Was the number of standards recom	mended in the method used for all analytes?	Х						
		Were all points generated between the	ne lowest and highest standard used to	X						
		calculate the curve?		_ ^						
		Are ICAL data available for all instrum		Х						
		Has the initial calibration curve been	verified using an appropriate second source	X						
		standard?								
S2	OI		erification (ICCV AND CCV) and continuing							
		Was the CCV analyzed at the metho	X							
		Were percent differences for each analyte within the method-required QC limits?								
		Was the ICAL curve verified for each	Х							
		Was the absolute value of the analyte			Х					
S3	0	Mass spectral tuning								
	Was the appropriate compound for the method used for tuning?			Х						
		Were ion abundance data within the	method-required QC limits?	X						
S4	0	Internal standards (IS)		X						
			Were IS area counts and retention times within the method-required QC limits?							
S5	OI	Raw data (NELAC Section 5.5.10)								
	Were the raw data (for example, chromatograms, spectral data) reviewed by an		matograms, spectral data) reviewed by an	l x						
		analyst?								
		Were data associated with manual integrations flagged on the raw data?		Х						
S6	0	Dual column confirmation				1 1/	_			
		Did dual column confirmation results				Х				
S7	0	Tentatively identified compounds				1	1			
		If TICs were requested, were the mass spectra and TIC data subject to appropriate								
S8		checks?								
	ı	Interference Check Sample (ICS) r				l v	_			
S9	<u> </u>	Were percent recoveries within meth	kes, and method of standard additions			Х				
39			, and the linearity within the QC limits			1				
		specified in the method?	, and the inteanty within the QC limits			Х				
S10	OI	Method detection limit (MDL) studi	ine							
310	- 01	Was a MDL study performed for each		Х						
		Is the MDL either adjusted or suppor		X				5		
S11	OI	Proficiency test reports	tod by the dridiyold of Beecs.	^				j		
	<u> </u>		ceptable on the applicable proficiency tests or		П					
		evaluation studies?	copiable on the applicable proficiency tools of	Х						
S12	OI	Standards documentation								
	<u> </u>		es NIST-traceable or obtained from other		П	l	<u> </u>			
		appropriate source?		X						
S13	OI	Compound/analyte identification p	rocedures							
		Are the procedures for compound/an		Х	П					
S14	OI	Demonstration of analyst compete	,							
_		Was DOC conducted consistent with		Х		Ī	Ī			
		Is documentation of the analyst's con	•	X						
S15	OI		tion for methods (NELAC Chapter 5)							
2	T -		the data documentated, verified, and			1				
		validated, where applicable?		X						
S16	OI	Laboratory standard operating pro	ocedures (SOPs)							
		Are laboratory SOPs current and on the		Х						
		•	•	•	-					



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports			
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012			
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20881			
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VK578			
ER# ¹	Description						
	For reporting	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method			
1	blank. The	SDL is defined in the report as the MI	DL.				
	For reporting	ng purposes, the method blank repres	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not			
2	included in the laboratory data package.						
	The labora	tory is NELAC-accredited under the T	exas Laboratory Accreditation Program for the	analytes, matrices, and			
3	methods a	ssociated with this laboratory data pac	kage for analytes that are listed in the Texas F	ields of Accreditation.			
4	All anomal	ies are discussed in the case narrative	9.				
	1	, ,	or Method RSKSOP-147/175. The component	s reported are not listed or			
5	do not hav	e values in the Texas TRRP PCL table	es.				

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20881

Job Number:

PESTXST EarthCon Consultants **Account:**

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VK578-MB	File ID K13177.D	DF 1	Analyzed 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	107%	80-119%
460-00-4	4-Bromofluorobenzene	103%	72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20881

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK578-BS	K13175.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.5	94	68-119
100-41-4	Ethylbenzene	25	23.4	94	71-117
108-88-3	Toluene	25	23.0	92	73-119
1330-20-7	Xylene (total)	75	71.7	96	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	105%	80-119%
460-00-4	4-Bromofluorobenzene	101%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20881

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20506-1MS	K13179.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1MSD	K13180.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1	K13178.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	TC20506-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	23.4	94	23.1	92	1	68-119/12
100-41-4	Ethylbenzene	ND	25	22.9	92	22.6	90	1	71-117/12
108-88-3	Toluene	ND	25	23.0	92	22.1	88	4	73-119/13
1330-20-7	Xylene (total)	ND	75	71.6	95	69.3	92	3	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20506-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	105%	104%	68-124%
2037-26-5	Toluene-D8	107%	105%	106%	80-119%
460-00-4	4-Bromofluorobenzene	103%	104%	104%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20881

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-MB	File ID SS005056.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20881

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-BS	File ID SS005054.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20881

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20970-2MS ^a TC20970-2 ^a	File ID SS005067.D SS005066.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20881

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:11 pm
Job Number:	TC20880	
Account:	EarthCor	n Consultants
Project:	Quarterly	Well Sampling, Parker County, Texas
Project Number:	3rd Quar	ter / WW24-Smi
	Legend:	Hit
Client Sample ID:		WW24-SMI-113012
Lab Sample ID:		TC20880-1
Date Sampled:		11/30/2012
Matrix:		Ground Water
GC/MS Volatiles (SW846 8260B)		
Benzene	mg/l	0.00034 U
Toluene	mg/l	0.00033 U
Ethylbenzene	mg/l	0.00032 U
Xylene (total)	mg/l	0.00087 U
GC Volatiles (RSKSOP-147/175)		
Methane	mg/l	0.117
Ethene	mg/l	0.00050 U
Ethane	mg/l	0.0136
Propane	mg/l	0.00075 U
Isobutane	mg/l	0.00075 U
Butane	mg/l	0.00075 U



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW24-Smi

Accutest Job Number: TC20880

Sampling Date: 11/30/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No:

TC20880

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW24-Smi

Sample	Collected			Matrix		Client	
Number	Date	Time By	Received	Code Type		Sample ID	
TC20880-1	11/30/12	13:10	12/04/12	AQ	Ground Water	WW24-SMI-113012	





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20880

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 9:46:27 AM

1 Sample was collected on 11/30/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20880. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20880

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 11/30/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method	
TC20880-1	WW24-SMI-113012						
Methane Ethane		0.117 0.0136	0.00050 0.0010	0.00030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175	



Sample Results	
Report of Analysis	



4

Report of Analysis

Client Sample ID: WW24-SMI-113012

 Lab Sample ID:
 TC20880-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087077.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 94% 98% 99%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



4

Report of Analysis

Client Sample ID: WW24-SMI-113012

 Lab Sample ID:
 TC20880-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

		File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
Rι	ın #1	SS005071.D	1	12/07/12	LT	n/a	n/a	GSS233	
Rι	ın #2								

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.117	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0136	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE __ OF __

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Company Name Project Name:								.		1				İ	1
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Gabriela Floreslovo								e,				1 1		-	AIR - Air
Phone # Fax # Client Purchase Order	r#	City		State	Zip		;	175				1 1	- 1		SOL - Other Solid WP - Wipe
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Sample# Field ID / Point of Collection Date	Time Sampled By	Matrix bottles 5	ĭ z a s	t H Z	5 2 F Z	m 0	ш,		_		_		-+		DID COL GILLI
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X Standard Approved By (Accutest to 5 Day RUSH	PM): / Date:		iai A (Lev iai "B" (Lev		EDD		ıt								
☐ 4 Day RUSH		FULT1 (Le			Othe				.,						
3 Day RUSH	_	REDT1 (L													
2 Day RUSH		Commercia	ial "C"												
1 Day EMERGENCY				rcial "A" = R											
Emergency & Rush T/A data available VIA Lablink	/				esults + QC S										
	e Custody must be docum	ented below each			esults + QC 8				elivery.		100				
	ceived By:	ented below each		Relinquished			auding o		Date T	ime:	-	ived By:			
(11 hund) 12/2/2/5/7			i	2							2				
Relinquished by Sampler: Date Time: Rec	celved By:		\overline{A}	Relinquished	By:				Date T	ime:		ived By:			
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5							tvot mitat								

TC20880: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC20	0880	Client:	EARTHCO	N CON	SULTANT	S	Project:	3RD QTR WEL	L SAMPLI	NG,P	ARKE	R COUNTY,T
Date / Time Received: 12/4/	2012		Delivery N	lethod:		Client	Airbill #'s:					
No. Coolers: 1	Therm ID:	IR6					Temp Adjus	tment Factor:	0.2			
Cooler Temps (Initial/Adjuste	ed): #1: (2.2	2/2.4)										
Cooler Security Y	or N			<u> Y o</u>	r N	Sample Integri	ity - Docume	ntation_	<u>Y</u>	or	N	
1. Custody Seals Present:		3. COC P		✓		Sample labels	s present on bo	ttles:	~			
2. Custody Seals Intact: ✓	_ 4	. Smpl Date	s/Time OK	✓		2. Container lab	eling complete:		✓			
Cooler Temperature	Y or N	<u>L</u>				3. Sample conta	iner label / CO	C agree:	✓			
1. Temp criteria achieved:	v					Sample Integr	rity - Conditio	on	ΥΥ	or	N	
Cooler temp verification:	Infared G					Sample recvd		_	✓			
3. Cooler media:	Ice (ba	g)				2. All containers	accounted for:		✓			
Quality Control Preservation	Y or	N N/A	_	WTB	STB	3. Condition of s	sample:			Intact		
1. Trip Blank present / cooler:	v			✓		Sample Integr	rity - Instructi	ions	Υ	or	N	N/A
2. Trip Blank listed on COC:						1. Analysis requ	uested is clear:		~			
3. Samples preserved properly:	✓ [2. Bottles receiv	ved for unspeci	fied tests			✓	
4. VOCs headspace free:						3. Sufficient vol	ume recvd for a	analysis:	✓			
						4. Compositing	instructions cle	ear:				~
						Filtering instr	uctions clear:					✓
Comments -Received trip blank -Received one of si			ger than pea	a size.								

TC20880: Chain of Custody

Page 1 of 3

Page 2 of 4







Problem Resolution

Accutest Job Number: TC20880

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report. Sufficient number of vials without headspace are available for the

requested analyses.

1

TC20880: Chain of Custody

Page 3 of 4







Sample Receipt Log

 Job #:
 TC20880
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20880-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20880-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20880-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20880-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20880-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20880-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20880: Chain of Custody

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Appendix A Laboratory Data Package Cover Page

TC20880 This data package consists of

[]

Richard Rodriguez

Ģ			list, and the following reportable data:	
Ģ	R1	Field chain-of-custody documentation		
Ģ	R2	Sample identification cross-reference		
Ģ	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:	
		a)	Items consistent with NELAC 5.13 or ISO/IEC	17025 Section 5.10
		b)	dilution factors,	
		c)	preparation methods,	
		d)	cleanup methods, and	
		e)	if required for the project, tentatively identified	d compounds (TICs).
Ģ	R4	Surrogate recovery data including:		
		a)	Calculated recovery (%R), and	
		b)	The laboratory's surrogate QC limits.	
	R5	Test reports/summary forms for blank	samples;	
	R6	Test reports/summary forms for labor	ratory control samples (LCSs) including:	
		a)	LCS spiking amounts,	
		b)	Calculated %R for each analyte, and	
		c)	The laboratory's LCS QC limits.	
	R7	,	natrix spike duplicates (MS/MSDs) including:	
-		a)	Samples associated with the MS/MSD clearly	/ identified
		b)	MS/MSD spiking amounts,	, identifica,
		c)	Concentration of each MS/MSD analyte measurements	sured in the parent and
		d)	Calculated %Rs and relative percent different	· ·
		e)	The laboratory's MS/MSD QC limits	bes (IXI Ds), and
п	R8	,		
ē	No	Laboratory analytical duplicate (if app		anta
		a)	The amount of analyte measured in the dupli	cale,
		b)	The calculated RPD, and	
_	Do	c)	The laboratory's QC limits for analytical dupli	
	R9		QLs) and detectability check sample results for	each analyte for each
Ģ	R10	Other problems or anomalies.		
			item in Laboratory Review Checklist and for e	
metrod for	WINCITUICI	aboratory does not note iverace accre	anation ander the rexas Eaboratory Accreate	norr rogram.
Texas Lab the Except requirement affirm to the	oratory Accion Report. onto the management of the management of the management of my	editation Program for all the methods, This data package has been reviewed ethods used, except where noted by the v knowledge, all problems/anomalies,	s laboratory data package. This laboratory is N analytes, and matrices reported in this data p I by the laboratory and is complete and technic all laboratory in the attached exception reports observed by the laboratory as having the poteratory Review Checklist, and no information or	ackage except as noted in cally compliant with the . By my signature below, I ntial to affect the quality of
Check, if a	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by	•
[] QA Manag	ier	noted in the Exception Reports herein	011. Any findings affecting the data in this labon. The official signing the cover page of the reputate package and is by signature affirming the	oort in which these data are
Name (Pri		Signature	Official Title (printed)	Date
ranic (r III	nou)	Olgitaturo	omoiai i nio (printou)	Date

Laboratory Director

12/12/2012



	ı	ABORATORY REVIEW O	HECKLIST: REPORTABLE	DAT	Δ.			
Laboratory		Accutest Gulf Coast	LRC Date:		/12/2	012		
Laboratory	radiio.	Quarterly Well Sampling, Parker	ENO Bale.	<u> </u>	,_			
Project Na	me:	County, Texas	Laboratory Project Number:	тс	2088	30		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS	233.	VX10	673	
#1	A ²	DESCRIPTION	1					ER#5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			andard conditions of sample acceptability			Г	Г	
		upon receipt?		X				
		Were all departures from standard co	onditions described in an exception report?	Х				
R2	OI	Sample and quality control (QC) id	entification					
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-re	eferenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyze	d within holding times?	Х				
		Other than those results <mql, td="" were<=""><td>all other raw values bracketed by calibration</td><td>X</td><td></td><td></td><td></td><td></td></mql,>	all other raw values bracketed by calibration	X				
		standards?		_ ^				
		Were calculations checked by a peer	•	Х				
		Were all analyte identifications check		Х				
		Were sample detection limits reported		Х				
			samples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported				Х		
			platile analysis extracted with methanol per			Х		
		SW846 Method 5035?		-				
R4		If required for the project, are TIC's re	еропеа?			Х		
K4	0	Surrogate recovery data Were surrogates added prior to extra	otion?	X				
			all samples within the laboratory QC limits?	 ^				
R5	OI	Test reports/summary forms for bl	· · · · · · · · · · · · · · · · · · ·	 ^				
		Were appropriate type(s) of blanks as		Х				
		Were blanks analyzed at the appropri		X				
			he entire analytical process, including					
		preparation and, if applicable, cleanu		X				
		Were blank concentrations <mql?< td=""><td>F F</td><td>X</td><td></td><td></td><td></td><td></td></mql?<>	F F	X				
R6	OI	Laboratory control samples (LCS):						
•		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the ent	tire analytical procedure, including prep and	Х				
		cleanup steps?		^				
		Were LCSs analyzed at required free		Х				
		Were LCS (and LCSD, if applicable)		X				
			data document the laboratory's capability to	X				5
		detect the COCs at the MDL used to		↓ ``	-		<u> </u>	<u> </u>
	<u> </u>	Was the LCSD RPD within QC limits				Х		
R7	OI	Matrix spike (MS) and matrix spike		V				
		Were MS/MSD analyzed at the appro	nalytes included in the MS and MSD?	X	-			
		Were MS (and MSD, if applicable) %		+^	Х	<u> </u>	<u> </u>	4
		Were the MS/MSD RPDs within labo		X	_			-
R8	OI	Analytical duplicate data	ratory &O minito:	\perp				
	- 01	Were appropriate analytical duplicate	es analyzed for each matrix?	X				
		Were analytical duplicates analyzed		X	\vdash	 	 	
			ations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):	·	- A				
	<u> </u>		te included in the laboratory data package?	Х				I
			entration of the lowest non-zero calibration	X				
			luded in the laboratory data package?		Х			2
R10	OI	Other problems/anomalies	, ,					
		Are all known problems/anomalies/sp	pecial conditions noted in this LRC and ER?	Х				
		Was applicable and available techno	logy used to lower the SDL to minimize the	Х				
			inder the Texas Laboratory Accreditation					
		Program for the analytes, matrices, a	nd methods associated with this laboratory	X		l	l	3
		data package?		<u></u>	L	L_	L_	<u> </u>



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2088	0		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS	233,	VX16	73	
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?						
		Were percent RSDs or correlation co	efficient criteria met?	Χ				
			mended in the method used for all analytes?	Χ				
			ne lowest and highest standard used to	х				
		calculate the curve?						
		Are ICAL data available for all instrun		Х				
			verified using an appropriate second source	l x l				
		standard?			\Box			
S2	OI		continuing calibration verification (ICCV AND CCV) and continuing				_	
		Was the CCV analyzed at the method		Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each		Х				
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning	a mostly and consider to minute	V			_	
		Was the appropriate compound for th		X				
		Were ion abundance data within the	method-required QC limits?	^				
S4	0	Internal standards (IS)	nes within the method-required QC limits?	Х			_	
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC limits?	^				_
	0		matograms, spectral data) reviewed by an				_	
		analyst?	matograms, spectral data) reviewed by an	Х				
		Were data associated with manual in	tegrations flagged on the raw data?	X				
S6	0	Dual column confirmation	tegrations hagged on the raw data:	_^_				
		Did dual column confirmation results	meet the method-required OC?			Х		
S7	0	Tentatively identified compounds						
			s spectra and TIC data subject to appropriate					
		checks?				Х		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method	od QC limits?			Х		
S9	ı	Serial dilutions, post digestion spi	kes, and method of standard additions					
		Were percent differences, recoveries	, and the linearity within the QC limits			Х		
		specified in the method?				^		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each		Х				
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Χ				5
S11	OI	Proficiency test reports						
			ceptable on the applicable proficiency tests or	l x l				
		evaluation studies?						
S12	OI	Standards documentation	NOT : II II II				_	
		•	s NIST-traceable or obtained from other	х				
<u> </u>		appropriate source?						
S13	OI	Compound/analyte identification p		V			-	
614	0	Are the procedures for compound/and	•	Х				
S14	OI	Demonstration of analyst compete Was DOC conducted consistent with		V 1				
		Is documentation of the analyst's com		X	-			
S15	OI	· · · · · · · · · · · · · · · · · · ·	ion for methods (NELAC Chapter 5)					
313	J J		the data documentated, verified, and					
		validated, where applicable?	ine data documentated, vermed, allu	Х				
S16	OI	Laboratory standard operating pro	ocaduras (SOPs)					
310	J 01	Are laboratory SOPs current and on f		Х				
		The laboratory 501 5 current and on t	no for each method periornicu:	_ ^				



aboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parke	r Laboratory Project Number:	TC20880						
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VX1673						
ER# ¹	Descripti	on	•	•						
	For report	ing purposes, the MQL is defined in the	he report as the RL. The unadjusted MQL	/RL is reported in the method						
1		e SDL is defined in the report as the M								
			sents the unadjusted MQL. The DCS is o	n file in the laboratory and is not						
2	included in the laboratory data package.									
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and									
3	methods a	associated with this laboratory data pa	ckage for analytes that are listed in the Te	exas Fields of Accreditation.						
4	All anoma	lies are discussed in the case narrativ	re.							
			for Method RSKSOP-147/175. The comp	onents reported are not listed or						
5	do not hav	ve values in the Texas TRRP PCL tab	oles.							

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20880

Job Number:

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	File ID X0087062.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	105% 95% 99% 98%	72-122% 68-124% 80-119% 72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20880

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-BS	File ID X0087060.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	101% 99% 101% 92%	72-122% 68-124% 80-119% 72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20880

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS MSD		TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%

^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20880

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-MB	File ID SS005056.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20880

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-BS	File ID SS005054.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20880

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20970-2MS ^a TC20970-2 ^a	File ID SS005067.D SS005066.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20880

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:10 pm
Job Number:	TC20876	
Account:	EarthCon C	onsultants
Project:	Quarterly W	ell Sampling, Parker County, Texas
Project Number:	3rd Quarter	/ WW-22-Sim
	Legend:	Hit
Client Sample ID:		WW-22-SIM- 120112
Lab Sample ID:		TC20876-1
Date Sampled:		12/01/2012
Matrix:		Ground Water
GC/MS Volatiles (SW846 8260B)		
Benzene	mg/l	0.00034 U
Toluene	mg/l	0.00033 U
Ethylbenzene	mg/l	0.00032 U
Xylene (total)	mg/l	0.00087 U
GC Volatiles (RSKSOP-147/175)		
	 	
Methane	mg/l	4.19
Ethene	mg/l	0.00050 U
Ethane	mg/l	0.192
Propane	mg/l	0.00075 U
Isobutane	mg/l	0.00075 U
Butane	mg/l	0.00075 U



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW-22-Sim

Accutest Job Number: TC20876

Sampling Date: 12/01/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



Laboratory Director

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Sample Summary

EarthCon Consultants

Job No:

TC20876

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW-22-Sim

Sample Number	Collected Date		Received	Matr Code		Client Sample ID
rumber	Dute	Time By	Received	Couc	Турс	Sumple 12
TC20876-1	12/01/12	13:00	12/04/12	AQ	Ground Water	WW-22-SIM-120112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20876

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:13:28 P

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20876. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20876

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/01/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20876-1	WW-22-SIM-1201	12				
Methane Ethane		4.19 0.192	0.025 0.0010	0.015 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175



Sample Results	
Report of Analysis	



4

Report of Analysis

Client Sample ID: WW-22-SIM-120112

 Lab Sample ID:
 TC20876-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087073.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	104% 96% 99% 97%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WW-22-SIM-120112

 Lab Sample ID:
 TC20876-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005046.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005049.D	50	12/06/12	LT	n/a	n/a	GSS232

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	4.19 a	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.192	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



CHAIN OF CUSTODY

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		,		

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Company Name	rojour rumor												1	ō,				1			1	İ		Ţ
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Stafford TX 77477													_	콜					li				1	SED-Sediment
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Gabriela Floreslovo													_	l e									- 1	AIR - Air
Phone # Fax # C	lient Purchase Ord	ler#		City				S	tate		•	Zip		the 175		İ								SOL - Other Solid WP - Wipe
281-201-3513													_	m ×										FB-Field Blank
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1 1					# of	Į	g	8 3	5 4	Vate 1	5	NaHSO- ENCOR	OTHER OTHER	Butane, Ethane, E	5	1								LAB USE ONLY
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TC20876: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC20	0876	Client:	EARTHCON	CONS	SULTANT	S	Project:	3RD QTR WEL	L SAMPLI	NG,PARK	ER COUNTY,T
Date / Time Received: 12/4/	2012		Delivery Mo	ethod:		Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6					Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adjuste	ed): #1: (2.2	/2.4)									
Cooler Security Y	or N			Y or	· N_	Sample Integr	ity - Documer	ntation_	Υ	or N	
Custody Seals Present: ✓		3. COC P		✓		1. Sample labels	s present on bo	ttles:	~		
2. Custody Seals Intact:	☐ 4.	Smpl Date	s/Time OK	✓		2. Container lab	eling complete:		✓		
Cooler Temperature	Y or N	<u>L</u>				3. Sample conta	ainer label / CO	C agree:	✓		
1. Temp criteria achieved:	V					Sample Integr	rity - Conditio	on	ΥΥ	or N	
Cooler temp verification:	Infared G	un				Sample recvo	d within HT:	_	✓		
Cooler media:	Ice (baç	3)				2. All containers	accounted for:		~		
Quality Control Preservation	Y or I	N N/A	<u> 1</u>	WTB	STB	3. Condition of s	sample:			Intact	
1. Trip Blank present / cooler:	V			✓		Sample Integr	rity - Instructi	ons	Υ	or N	N/A
2. Trip Blank listed on COC:						Analysis requ			<u> </u>		
3. Samples preserved properly:	✓ [2. Bottles recei		fied tests		✓	
4. VOCs headspace free:	v					3. Sufficient vol	lume recvd for a	analysis:	✓		
						4. Compositing	instructions cle	ar:			✓
						5. Filtering instr	ructions clear:				~
Comments - Received trip blan	k not listed on	COC.			-						

TC20876: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC20876

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

__

TC20876: Chain of Custody Page 3 of 4







Sample Receipt Log

 Job #:
 TC20876
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20876-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20876-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20876-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20876-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20876-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20876-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IR6	2.2	0.2	2.4

TC20876: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20876 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody docum	nentation;
į.	R2	Sample identification cross-re	
D	R3	Test reports (analytical data s	sheets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	uding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	for blank samples;
	R6	Test reports/summary forms	for laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicat	te (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation lin	nits (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies	
			ed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELA	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	se of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	boratory Ac	creditation Program for all the m	nethods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report	. This data package has been r	eviewed by the laboratory and is complete and technically compliant with the
requireme	ents of the r	nethods used, except where no	ted by the laboratory in the attached exception reports. By my signature below, I
affirm to the	he best of n	ny knowledge, all problems/ano	malies, observed by the laboratory as having the potential to affect the quality of
the data, I	have been i	dentified by the laboratory in the	e Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable	: This laboratory meets an exc	eption under 30 TAC&25.6 and was last inspection by
[]		[X]TCEQ or [] or	April 2011. Any findings affecting the data in this laboratory data package are
		noted in the Exception Repor	ts herein. The official signing the cover page of the report in which these data are
		used is responsible for releas	sing this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά		
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12	12/2	012	
		Quarterly Well Sampling, Parker				
Project Na		County, Texas Laboratory Project Number:	1	2087		
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS			
#1	A ²	DESCRIPTION	YES	NO	NA°	NR⁴ ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):				
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X			
		Were all departures from standard conditions described in an exception report?	X			
R2	OI	Sample and quality control (QC) identification	7.			
	<u> </u>	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X			$\overline{}$
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X			
R3	OI	Test reports	T (
	<u> </u>	Were samples prepared and analyzed within holding times?	Х			П
		Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td></td><td></td><td></td><td></td></mql,>				
		standards?	X			
		Were calculations checked by a peer or supervisor?	Х			
		Were all analyte identifications checked by a peer or supervisor?	Х			
		Were sample detection limits reported for all analytes not detected?	Х			
		Were all results for soil and sediment samples reported on a dry weight basis?			Х	
		Were % moisture (or solids) reported for all soil and sediment samples?			Χ	
		Were bulk soils/solids samples for volatile analysis extracted with methanol per			Х	
		SW846 Method 5035? If required for the project, are TIC's reported?	-		Х	
R4	0	Surrogate recovery data			^	
N4		Were surrogates added prior to extraction?	X			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X			
R5	OI	Test reports/summary forms for blank samples				
	<u> </u>	Were appropriate type(s) of blanks analyzed?	Х			ı
		Were blanks analyzed at the appropriate frequency?	Х			
		Were method blanks taken through the entire analytical process, including	X			
		preparation and, if applicable, cleanup procedures?	_ ^			
		Were blank concentrations <mql?< td=""><td>Х</td><td></td><td></td><td></td></mql?<>	Х			
R6	OI	Laboratory control samples (LCS):				
		Were all COCs included in the LCS?	X			
		Was each LCS taken through the entire analytical procedure, including prep and	X			
		Cleanup steps?	X			
		Were LCSs analyzed at required frequency? Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X			
		Does the detectability check sample data document the laboratory's capability to	+^			
		detect the COCs at the MDL used to calculate the SDLs?	X			5
		Was the LCSD RPD within QC limits?			Х	
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data			, i	
		Were the project/method specified analytes included in the MS and MSD?	Х			
		Were MS/MSD analyzed at the appropriate frequency?	Х			
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?		Χ		4
		Were the MS/MSD RPDs within laboratory QC limits?	Х			
R8	OI	Analytical duplicate data				
		Were appropriate analytical duplicates analyzed for each matrix?	Х	Ш		
		Were analytical duplicates analyzed at the appropriate frequency?	X	L.		
		Were RPDs or relative standard deviations within the laboratory QC limits?		Х		4
R9	OI	Method quantitation limits (MQLs):	.,			
		Are the MQLs for each method analyte included in the laboratory data package?	X	\vdash		
		Do the MQLs correspond to the concentration of the lowest non-zero calibration Are unadjusted MQLs and DCSs included in the laboratory data package?	X	Х	-	2
R10	OI	Other problems/anomalies				
1,10	0	Are all known problems/anomalies/special conditions noted in this LRC and ER?	X			
		Was applicable and available technology used to lower the SDL to minimize the	X			
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation	†^			
		Program for the analytes, matrices, and methods associated with this laboratory	X			3
		data package?	l			
			-			



Laboratory Name:		Accutest Gulf Coast LRC Date:		12/12/2012				
Project Na	me:	Quarterly Well Sampling, Parker Laboratory Project Number:		TC	TC20876			
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS	232,	VX16	73	
#1	A ²	DESCRIPTION		YES	NO	NA ³	NR⁴	ER #5
S1	OI	Initial calibration (ICAL)						
		· ·	e response factors for each analyte within QC	l _x l				
		limits?		X				
			Vere percent RSDs or correlation coefficient criteria met?					
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	x				
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	X				
S2	OI	standard?	erification (ICCV AND CCV) and continuing					
32	<u> </u>	Was the CCV analyzed at the method		Х				
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each		X				
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning	o de località de la la la la la la la la la la la la la					
	_ <u> </u>	Was the appropriate compound for the	ne method used for tuning?	Х				
		Were ion abundance data within the		X				
S4	0	Internal standards (IS)						
			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chro	Х					
		analyst?	^					
		Were data associated with manual in	Х					
S6	0	Dual column confirmation						
		Did dual column confirmation results			Χ			
S7	0	Tentatively identified compounds (
			s spectra and TIC data subject to appropriate			Х		
		checks?			\Box	^		
S8	ı	Interference Check Sample (ICS) r				. V		
	<u> </u>	Were percent recoveries within metho				Х		
S9	I		kes, and method of standard additions					
		specified in the method?	, and the linearity within the QC limits			Χ		
S10	OI	Method detection limit (MDL) studi	os .					
310	- 01	Was a MDL study performed for each		Х				
		Is the MDL either adjusted or support		X				5
S11	OI	Proficiency test reports	iou zy aro unulyoto ot z o co.					Ť
			ceptable on the applicable proficiency tests or	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				
		evaluation studies?		X				
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	х				
		appropriate source?		^				
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/and	•	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with		Х	Ш			
		Is documentation of the analyst's com	<u> </u>	Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		ů.	the data documentated, verified, and	x				
		validated, where applicable?	anduras (CODs)					
S16	OI	Laboratory standard operating pro		Х				
<u> </u>	L	Are laboratory SOPs current and on file for each method performed?					\Box	



	LABUR	CATORT REVIEW CHEC	KLIST (continued): Exception	n keports						
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20876						
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VX1673						
ER# ¹	Description									
	For reporti	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method						
1		SDL is defined in the report as the MI								
	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not									
2	included in	the laboratory data package.								
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and									
3	methods a	ssociated with this laboratory data pac	kage for analytes that are listed in the Texas F	ields of Accreditation.						
4	All anomal	ies are discussed in the case narrative).							
	The labora	tory does not perform DCS analysis for	or Method RSKSOP-147/175. The component	s reported are not listed or						
5	do not hav	e values in the Texas TRRP PCL table	es.							
		<u> </u>								
		·	·	<u> </u>						
		·								

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20876

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	File ID X0087062.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No. Surrogate Recoveries		Limits	
1868-53-7 Dibromofluoromethane	105%	72-122%	
17060-07-0 1,2-Dichloroethane-D4	95%	68-124%	
2037-26-5 Toluene-D8	99%	80-119%	
460-00-4 4-Bromofluorobenzene	98%	72-126%	



Method: SW846 8260B

Blank Spike Summary Job Number: TC20876

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX1673-BS	X0087060.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	101% 99% 101%	72-122% 68-124% 80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

σ

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20876

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS MSD		TC20864-1	Limits	
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%	
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%	
2037-26-5	Toluene-D8	100%	100%	100%	80-119%	
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%	

^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20876

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample GSS232-MB	File ID SS005026.D	DF 1	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20876

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS232-BS	File ID SS005023.D	DF 1	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	21.0	98	68-139
74-85-1	Ethene	57.4	54.7	95	52-145
74-84-0	Ethane	43.3	56.7	131	68-131
74-98-6	Propane	60.6	68.2	113	69-131
75-28-5	Isobutane	72.5	77.3	107	72-131
106-97-8	Butane	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20876

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1MS	SS005029.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* 0 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431* 8	68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20876

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20876-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:11 pm				
Job Number:	TC20879	TC20879				
Account:	EarthCo	n Consultants				
Project:	Quarterly	y Well Sampling, Parker County, Texas				
Project Number:	3rd Quar	ter / WW21-Van				
	Legend:	Hit				
Client Sample ID:		WW21-VAN-113012				
Lab Sample ID:		TC20879-1				
Date Sampled:		11/30/2012				
Matrix:		Ground Water				
GC/MS Volatiles (SW846 8260B)						
Benzene	mg/l	0.00034 U				
Toluene	mg/l	0.00033 U				
Ethylbenzene	mg/l	0.00032 U				
Xylene (total)	mg/l	0.00087 U				
GC Volatiles (RSKSOP-147/175)						
	, ,					
Methane	mg/l	0.00410				
Ethene	mg/l	0.00050 U				
Ethane	mg/l	0.00050 U				
Propane	mg/l	0.00075 U				
Isobutane	mg/l	0.00075 U				
Butane	mg/l	0.00075 U				



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW21-Van

Accutest Job Number: TC20879

Sampling Date: 11/30/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No: TC20879

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW21-Van

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Туре	Sample ID
TC20879-1	11/30/12	17:10	12/04/12	AQ	Ground Water	WW21-VAN-113012





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20879

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 10:36:59 A

1 Sample was collected on 11/30/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20879. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20879

Account: EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

11/30/12 **Collected:**

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20879-1	WW21-VAN-1130	12				

0.00410 Methane 0.00050 0.00030 mg/l RSKSOP-147/175



Sample Results		
Report of Analysis		



4

Report of Analysis

Client Sample ID: WW21-VAN-113012

 Lab Sample ID:
 TC20879-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087076.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 96% 98% 98%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



4

Report of Analysis

Client Sample ID: WW21-VAN-113012

 Lab Sample ID:
 TC20879-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
Run #1	SS005061.D	1	12/07/12	LT	n/a	n/a	GSS233	
Run #2								

RSK147 Special List

Compound	Result	MQL	SDL	Units	Q
Methane	0.00410	0.00050	0.00030	mg/l	
Ethene	0.00050 U	0.0010	0.00050	mg/l	
Ethane	0.00050 U	0.0010	0.00050	mg/l	
Propane	0.00075 U	0.0015	0.00075	mg/l	
Isobutane	0.00075 U	0.0015	0.00075	mg/l	
Butane	0.00075 U	0.0015	0.00075	mg/l	
	Methane Ethene Ethane Propane Isobutane	Methane 0.00410 Ethene 0.00050 U Ethane 0.00050 U Propane 0.00075 U Isobutane 0.00075 U	Methane 0.00410 0.00050 Ethene 0.00050 U 0.0010 Ethane 0.00050 U 0.0010 Propane 0.00075 U 0.0015 Isobutane 0.00075 U 0.0015	Methane 0.00410 0.00050 0.00030 Ethene 0.00050 U 0.0010 0.00050 Ethane 0.00050 U 0.0010 0.00050 Propane 0.00075 U 0.0015 0.00075 Isobutane 0.00075 U 0.0015 0.00075	Methane 0.00410 0.00050 0.00030 mg/l Ethene 0.00050 U 0.0010 0.00050 mg/l Ethane 0.00050 U 0.0010 0.00050 mg/l Propane 0.00075 U 0.0015 0.00075 mg/l Isobutane 0.00075 U 0.0015 0.00075 mg/l

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit E = Indicates value exceeds calibration range J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE 1 OF (

CHAIN OF CUSTODY

<u>r</u> a	
ACCUTEST	
 Labarataries	

CACCUTEST													FED-E	X Tracking	#				Bottle Or	der Conti	ol#			
Laboratories			10165 Harv TEL. 713	-271-4700	FAX:	713-2							Accut	est Quote #	-				Accutest	Job#_	10	76	0	879
Client / Reporting Information		A	Project I		ccutest.co	23,61							8			Req	ues	t e d	Ana	yse	s			Matrix Codes
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Company Name				_										Je,									1.	
EarthCon Consultants, Inc.	Third Quarterl	y Well Samplin	g, Parker C	ounty, 1	Texas		12.000	interior in	50490			ang maran	NE.	ţ.			1				-			OW - Drinking Water GW - Ground Water
Street Address	Street			D	nformatio	- / 16	differen	at from	n Don	ort to				ž							1	1		WW - Water SW - Surface Water
4800 Sugar Grove Blvd., Suite 390 City State Zip	City		State	Company		n (ir i	amere	nt iroi	n Kep	ort to	·)		┨	le,									- 1	SO - Soil
													ı	l ti	1									SL- Sludge SED-Sediment
Stafford TX 77477 Project Contact E-mail	Project #			Street Ad	Idress									lsol								1	- 1	OI - Oil
Gabriela Floreslovo														Ethene, Isobutane, Methane,										LIQ - Other Liquid AIR - Air
Phone # Fax #	Client Purchase C	rder#		City				Sta	ate		Z	ip		the 175	1		1							SOL - Other Solid WP - Wipe
281-201-3513													_	", X										FB-Field Blank
Sampler(s) Name(s) Phone #	Project Manager			Attention	:									le sa			l							
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Accules					#of		ZANAC	HN03	NONE	DI Wate	TSP	NaHSO4 ENCORE	OTHER BTEX 8260B	Butane, Ethane, E	[İ			ı	LAB USE ONLY
Sample # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	bottles	포	žã	ΞΞ	ž	۵≥	F	ž 🗓	0 "	_	+	_	┼	-	-	-		\vdash	\dashv	
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Turnaround Time (Business days)								Delive			_		1068	(ASSAMBLA)	gasawaye		ALCOHOL:	(a) Cor	nments	/ Spec	idi iribu t	ICCIONS	20040040	\$60 (FORMAL SECTION SECTION SEC
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Emergency & Rush T/A data available VIA Lablink	1. 197	- (E)										Summ		ummary										
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TC20879: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC20879	Client:	EARTHCON CONSULTAI	NTS	Project: 3RD QTR WEL	L SAMPLING	,PARKE	R COUNTY,T
Date / Time Received: 12/4/2012		Delivery Method:	Client	Airbill #'s:			
No. Coolers: 1 There	m ID: IR6			Temp Adjustment Factor:	0.2		
Cooler Temps (Initial/Adjusted): #1	: (2.2/2.4)						
Cooler Security Y or N		Y or N	Sample Integ	grity - Documentation	<u>Y</u> o	r N	
 Custody Seals Present: Custody Seals Intact: 	•			els present on bottles: abeling complete:	✓		
·	or N			ntainer label / COC agree:	✓		
	ared Gun		Sample Inte	grity - Condition	<u>Y</u> •	r N	
3. Cooler media: Id	e (bag) or N N/A		All containe Condition or	ers accounted for: f sample:	✓ Int	act	
1. Trip Blank present / cooler:		V	Sample Inte	grity - Instructions	<u>Y</u> o	r N	N/A
2. Trip Blank listed on COC:	v		1. Analysis re	equested is clear:	✓		
3. Samples preserved properly:			2. Bottles rec	eived for unspecified tests		✓	
4. VOCs headspace free: ✓				olume recvd for analysis: ng instructions clear:	Z		V
			· ·	structions clear:			✓
Comments - Received trip blank not list - Received six vials, COC list							

TC20879: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC20879

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

TC20879: Chain of Custody Page 3 of 4







Sample Receipt Log

 Job #:
 TC20879
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20879-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20879-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20879-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20879-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20879-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20879-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst	IR6	2.2	0.2	2.4

TC20879: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20879 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody docume	entation;
	R2	Sample identification cross-ref	ference;
Ģ	R3	Test reports (analytical data sh	neets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	or blank samples;
	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix:	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		its (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELAC	Caccreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	e of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	ooratory Acc	creditation Program for all the me	ethods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report	. This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where note	ed by the laboratory in the attached exception reports. By my signature below, I
affirm to the	ne best of m	ny knowledge, all problems/anon	nalies, observed by the laboratory as having the potential to affect the quality of
the data, I	nave been i	dentified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable	•	ption under 30 TAC&25.6 and was last inspection by
[]			April 2011. Any findings affecting the data in this laboratory data package are
			s herein. The official signing the cover page of the report in which these data are
		used is responsible for releasing	ng this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά						
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12/	/12/2	012					
		Quarterly Well Sampling, Parker								
Project Na		County, Texas Laboratory Project Number:	+	2087						
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS233, VX1673 YES NO NA NR ER							
# ¹	A²	DESCRIPTION	YES	NO	NA	NR*	ER #			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):								
		Did samples meet the laboratory's standard conditions of sample acceptability	X							
		upon receipt?	X							
		Were all departures from standard conditions described in an exception report?	<u> </u>							
R2	OI	Sample and quality control (QC) identification	- V							
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				<u> </u>			
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X							
R3	OI	Test reports								
		Were samples prepared and analyzed within holding times? Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>X</td><td></td><td></td><td></td><td><u> </u></td></mql,>	X				<u> </u>			
		· · · · · · · · · · · · · · · · · · ·	Х							
		standards? Were calculations checked by a peer or supervisor?	X				—			
		Were all analyte identifications checked by a peer or supervisor?	X							
		Were sample detection limits reported for all analytes not detected?	l x							
		Were all results for soil and sediment samples reported on a dry weight basis?	+^		Х					
		Were % moisture (or solids) reported for all soil and sediment samples?	+		X					
		Were bulk soils/solids samples for volatile analysis extracted with methanol per								
		SW846 Method 5035?			Х					
		If required for the project, are TIC's reported?			Χ					
R4	0	Surrogate recovery data								
		Were surrogates added prior to extraction?	X							
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X							
R5	OI	Test reports/summary forms for blank samples								
		Were appropriate type(s) of blanks analyzed?	X							
		Were blanks analyzed at the appropriate frequency?	X							
		Were method blanks taken through the entire analytical process, including	X							
		preparation and, if applicable, cleanup procedures? Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td><td>-</td></mql?<>	X				-			
R6	OI	Laboratory control samples (LCS):	 ^							
	 0.	Were all COCs included in the LCS?	X							
		Was each LCS taken through the entire analytical procedure, including prep and								
		cleanup steps?	X							
		Were LCSs analyzed at required frequency?	X							
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Х							
		Does the detectablility check sample data document the laboratory's capability to					-			
		detect the COCs at the MDL used to calculate the SDLs?	X				5			
		Was the LCSD RPD within QC limits?			Χ					
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data								
		Were the project/method specified analytes included in the MS and MSD?	X							
		Were MS/MSD analyzed at the appropriate frequency?	X	L.						
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?	 	Х			4			
	 	Were the MS/MSD RPDs within laboratory QC limits?	X							
R8	OI	Analytical duplicate data	V							
		Were appropriate analytical duplicates analyzed for each matrix?	X				<u> </u>			
		Were analytical duplicates analyzed at the appropriate frequency? Were RPDs or relative standard deviations within the laboratory QC limits?	X							
R9	OI	Method quantitation limits (MQLs):	 ^							
1.3	0	Are the MQLs for each method analyte included in the laboratory data package?	X							
		Do the MQLs correspond to the concentration of the lowest non-zero calibration	 ^	\vdash						
		Are unadjusted MQLs and DCSs included in the laboratory data package?	+^	Х			2			
R10	OI	Other problems/anomalies					Ė			
···•	<u> </u>	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Х							
		Was applicable and available technology used to lower the SDL to minimize the	X							
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation								
		Program for the analytes, matrices, and methods associated with this laboratory	X				3			
		data package?								



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012				
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20879						
Reviewer	Name:	Anita Patel	GSS	233,	VX16	73				
#1	A ²	DESCRIPTION		YES	NO	NA^3	NR⁴	ER#5		
S1	OI	Initial calibration (ICAL)								
		Were response factors and/or relative	e response factors for each analyte within QC	х						
		limits?								
		Were percent RSDs or correlation co		Х						
			mended in the method used for all analytes?	Х						
			ne lowest and highest standard used to	X						
		calculate the curve?								
		Are ICAL data available for all instrum		Х						
			verified using an appropriate second source	Х						
		standard?			_					
S2	OI		erification (ICCV AND CCV) and continuing	V						
		Was the CCV analyzed at the method		X						
		Was the ICAL curve verified for each	alyte within the method-required QC limits?	X						
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Χ</th><th></th><th></th></mdl?<>			Χ				
S3	0	Mass spectral tuning	e concentration in the morganic CCB <mdl?< th=""><th></th><th></th><th>^</th><th></th><th></th></mdl?<>			^				
		Was the appropriate compound for the	ne method used for tuning?	Х						
		Were ion abundance data within the		X						
S4	0	Internal standards (IS)	memod required QO illinio:							
	├		nes within the method-required QC limits?	Х						
S5	OI	Raw data (NELAC Section 5.5.10)	med warm are meaned required &e minus.							
	Ţ.		matograms, spectral data) reviewed by an							
		analyst?		Х						
		Were data associated with manual in	tegrations flagged on the raw data?	Х						
S6	0	Dual column confirmation	0							
		Did dual column confirmation results	meet the method-required QC?			Х				
S7	0	Tentatively identified compounds (
		If TICs were requested, were the mas	s spectra and TIC data subject to appropriate			Х				
		checks?				^				
S8	ı	Interference Check Sample (ICS) r								
		Were percent recoveries within meth-				Χ				
S9	ı		kes, and method of standard additions							
			, and the linearity within the QC limits			Х				
		specified in the method?			\Box					
S10	OI	Method detection limit (MDL) studi								
		Was a MDL study performed for each		X						
C44	OI	Is the MDL either adjusted or support	led by the analysis of DCSs?	X	_			5		
S11	OI OI	Proficiency test reports	ceptable on the applicable proficiency tests or				-			
		evaluation studies?	ceptable on the applicable proliciency tests of	Х						
S12	OI	Standards documentation								
			s NIST-traceable or obtained from other				1			
		appropriate source?	o mor traceable of obtained from other	Х						
S13	OI	Compound/analyte identification p	rocedures							
		Are the procedures for compound/analyte identification documented?								
S14	OI	Demonstration of analyst competency (DOC)								
		Was DOC conducted consistent with NELAC Chapter 5?								
		Is documentation of the analyst's competency up-to-date and on file?								
S15	OI	Verification/validation documentat								
			the data documentated, verified, and	V						
L	<u></u>	validated, where applicable?		Х]			
S16	OI	Laboratory standard operating pro								
		Are laboratory SOPs current and on f	ile for each method performed?	Х						



Laboratory		RATORY REVIEW CHEC Accutest Gulf Coast	LRC Date:	12/12/2012
Project Na		Quarterly Well Sampling, Parker		TC20879
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VX1673
ER# ¹	Description	on	` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	,
1	blank. The	ing purposes, the MQL is defined in the SDL is defined in the report as the MI	DL. ,	•
2		ng purposes, the method blank repres n the laboratory data package.	ents the unadjusted MQL. The DCS	is on file in the laboratory and is no
3	1	atory is NELAC-accredited under the T associated with this laboratory data pac	, ,	
4	All anoma	lies are discussed in the case narrative) .	
5		atory does not perform DCS analysis for re values in the Texas TRRP PCL table		omponents reported are not listed o

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20879

PESTXST EarthCon Consultants **Account:**

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-MB	File ID X0087062.D	DF	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	99%	80-119%
460-00-4	4-Bromofluorobenzene	98%	72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20879

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-BS	File ID X0087060. D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	Dibromofluoromethane	101%	72-122%
	1,2-Dichloroethane-D4	99%	68-124%
	Toluene-D8	101%	80-119%
	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20879

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20879

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample GSS233-MB	File ID SS005056.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20879

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-BS	File ID SS005054.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20879

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20970-2MS ^a	SS005067.D	12/07/12	LT	n/a	n/a	GSS233
TC20970-2 ^a	SS005066.D	12/07/12	LT	n/a	n/a	GSS233

The QC reported here applies to the following samples:

TC20879-1

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20879

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

TC20879-1

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:10 pm			
Job Number:	TC20875				
Account:	EarthCor	n Consultants			
Project:	Quarterly	Well Sampling, Parker County, Texas			
Project Number:	3rd Quar	ter / WW20-Huf			
	Legend:	Hit			
Client Sample ID:		WW20-HUF-120112			
Lab Sample ID:		TC20875-1			
Date Sampled:		12/01/2012			
Matrix:		Ground Water			
GC/MS Volatiles (SW846 8260B)					
	1				
Benzene	mg/l	0.00034 U			
Toluene	mg/l	0.00033 U			
Ethylbenzene	mg/l	0.00032 U			
Xylene (total)	mg/l	0.00087 U			
GC Volatiles (RSKSOP-147/175)					
	I				
Methane	mg/l	0.669			
Ethene	mg/l	0.00050 U			
Ethane	mg/l	0.0213			
Propane	mg/l	0.00075 U			
Isobutane	mg/l	0.00075 U			
Butane	mg/l	0.00075 U			



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW20-Huf

Accutest Job Number: TC20875

Sampling Date: 12/01/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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Sample Summary

EarthCon Consultants

Job No:

TC20875

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW20-Huf

Sample Collected			Matrix		Client	
Number	Date	Time By	Received	Code	Type	Sample ID
TC20875-1	12/01/12	09:28	12/04/12	AQ	Ground Water	WW20-HUF-120112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20875

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:12:44 P

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20875. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20875

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/01/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method	
TC20875-1	WW20-HUF-120112						
Methane Ethane		0.669 0.0213	0.0050 0.0010	0.0030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175	



Sample Results		
Report of Analysis		



Report of Analysis

Client Sample ID: WW20-HUF-120112

 Lab Sample ID:
 TC20875-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087072.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 96% 100% 99%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WW20-HUF-120112

 Lab Sample ID:
 TC20875-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005045.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005048.D	10	12/06/12	LT	n/a	n/a	GSS232

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.669 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0213	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



PAGE __ OF __

CHAIN OF CUSTODY

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Client / Reporting Information			Project I			6000										F	₹eqi	uest	e d	Anal	yse	5			Matrix Codes
201000000000000000000000000000000000000	Project Name:	S. CELENANDO I KONDONINA																							.
Company Name				_										l	je,										DW - Drinking Water
EarthCon Consultants, Inc.		riy Well Samplir	ng, Parker C	ounty, T	exas	A/14/GET	30.63 AV	TAX STORY	1000000	000000		Santial)	1056		ŧ									. 1	GW - Ground Water
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1 Joject Contact	1,10,000													- 1	Ethene, Isobutane, Methane,										LIQ - Other Liquid AIR - Air
Gabriela Floreslovo Phone # Fax #	Client Purchase	Order#		City				Sta	ate			Zip			ther 75										SOL - Other Solid WP - Wipe
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Sample# Field ID / Point of Collection	Date	Time	Sampled By	Matrix	bottles	모	ZAIN	로 로	ž	ā	TS P	S 5	16							├ ─	 	_	├	╁	EAD COL CITE
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TC20875: Chain of Custody Page 1 of 4





Accutest Laboratories Sample Receipt Summary

Client: EARTHCON CONSULTANTS Project: 3RD QTR WELL SAMPLING, PARKER COUNTY, T Accutest Job Number: TC20875 Delivery Method: Client Airbill #'s: Date / Time Received: 12/4/2012 No. Coolers: 1 Temp Adjustment Factor: 0.2 Therm ID: IR6 Cooler Temps (Initial/Adjusted): #1: (2.2/2.4) Cooler Security Y or N Y or N Sample Integrity - Documentation Y or N 3. COC Present: **v** 1. Custody Seals Present: **V** 1. Sample labels present on bottles: 4. Smpl Dates/Time OK \checkmark 2. Custody Seals Intact: **~** 2. Container labeling complete: 3. Sample container label / COC agree: ✓ **Cooler Temperature** Y or N 1. Temp criteria achieved: N Sample Integrity - Condition Infared Gun 2. Cooler temp verification: **~** 1. Sample recvd within HT: 3. Cooler media: Ice (bag) 2. All containers accounted for: **V** STB **Quality Control Preservation** Y or N N/A WTB 3. Condition of sample: Intact 1. Trip Blank present / cooler: ✓ ✓ Y or N N/A Sample Integrity - Instructions **~** 2. Trip Blank listed on COC: 1. Analysis requested is clear: ✓ **V** 3. Samples preserved properly: 2. Bottles received for unspecified tests ✓ 4. VOCs headspace free: **V** 3. Sufficient volume recvd for analysis: **~** 4. Compositing instructions clear: \checkmark 5. Filtering instructions clear: **V** Comments -Received trip blank not listed on COC.

> TC20875: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC20875

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

TC20875: Chain of Custody Page 3 of 4







Sample Receipt Log

 Job #:
 TC20875
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20875-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20875-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20875-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20875-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20875-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20875-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst	IR6	2.2	0.2	2.4

TC20875: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20875 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

is true.

Signature

ė	R1	Field chain-of-custody documentation	J;
	R2	Sample identification cross-reference	•
	R3	Test reports (analytical data sheets) for	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labora	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/m	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if app	licable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQ	Ls) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
The Excep	tion Report	for each "No" or "Not Reviewed (NR)"	item in Laboratory Review Checklist and for each analyte, matrix, and
method for	which the la	aboratory does not hold NELAC accred	ditation under the Texas Laboratory Accreditation Program.
Release S	Statement:	I am responsible for the release of this	laboratory data package. This laboratory is NELAC accredited under the
Texas Lab	oratory Accr	reditation Program for all the methods,	analytes, and matrices reported in this data package except as noted in
the Except	ion Report.	This data package has been reviewed	by the laboratory and is complete and technically compliant with the
requiremen	nts of the me	ethods used, except where noted by the	ne laboratory in the attached exception reports. By my signature below, I
affirm to th	e best of my	y knowledge, all problems/anomalies, o	observed by the laboratory as having the potential to affect the quality of
the data, h	ave been id	entified by the laboratory in the Labora	atory Review Checklist, and no information or data have been knowingly
withheld.			
Check, if	applicable:	This laboratory meets an exception un	nder 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] on April 20	011. Any findings affecting the data in this laboratory data package are
			n. The official signing the cover page of the report in which these data are
		·	data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date

12/12/2012



	ı	ABORATORY REVIEW	HECKLIST: REPORTABLE	DΔT	Δ			
Laboratory		Accutest Gulf Coast	LRC Date:		12/2	012		
Laboratory	ivanio.	Quarterly Well Sampling, Parker		12	12/2	012		
Project Na	me:	County, Texas	Laboratory Project Number:	тс	2087	75		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	_		VX16	373	
#1	A ²	DESCRIPTION	Trop Edicit Hambor(o).					ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			andard conditions of sample acceptability					
		upon receipt?	, , ,	X				
		Were all departures from standard co	onditions described in an exception report?	Х				
R2	OI	Sample and quality control (QC) id	lentification					
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-r	eferenced to the corresponding QC data?	Х				
R3	OI	Test reports	·					
		Were samples prepared and analyze	ed within holding times?	Х				
			all other raw values bracketed by calibration					
		standards?	,	X				
		Were calculations checked by a peer	or supervisor?	Х				
		Were all analyte identifications check	ked by a peer or supervisor?	Х				
		Were sample detection limits reporte		Х				
			ere all results for soil and sediment samples reported on a dry weight basis?					
			ere % moisture (or solids) reported for all soil and sediment samples? ere bulk soils/solids samples for volatile analysis extracted with methanol per					
			platile analysis extracted with methanol per			х		
		SW846 Method 5035?	. 10	-				
		If required for the project, are TIC's re	eported?			X		
R4	0	Surrogate recovery data	-4	V		_		
		Were surrogates added prior to extra	all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for bl	· · · · · · · · · · · · · · · · · · ·	 ^				
- 67	0	Were appropriate type(s) of blanks a		Х				
		Were blanks analyzed at the appropri	· ·	X				
	Were method blanks taken through the entire analytical process, including							
		preparation and, if applicable, cleanup procedures?		X				
		Were blank concentrations <mql?< td=""><td>p procedures.</td><td>l x</td><td></td><td></td><td></td><td></td></mql?<>	p procedures.	l x				
R6	OI	Laboratory control samples (LCS)	:					
		Were all COCs included in the LCS?		Х				l .
		Was each LCS taken through the ent	tire analytical procedure, including prep and					
		cleanup steps?		X				
		Were LCSs analyzed at required free	quency?	Х				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
			data document the laboratory's capability to	X				5
		detect the COCs at the MDL used to		^				Ů
		Was the LCSD RPD within QC limits				X		
R7	OI	Matrix spike (MS) and matrix spike		V				
			nalytes included in the MS and MSD?	X		<u> </u>	-	
		Were MS/MSD analyzed at the approver Were MS (and MSD, if applicable) %		X	X	<u> </u>	<u> </u>	4
		Were the MS/MSD RPDs within labor		X	 ^		 	-
R8	OI	Analytical duplicate data	ratory see minus:	<u> </u>				
	- 01	Were appropriate analytical duplicate	es analyzed for each matrix?	X				
		Were analytical duplicates analyzed	,	l x	\vdash	-	 	
			ations within the laboratory QC limits?	+^	Х			4
R9	OI	Method quantitation limits (MQLs):	·		<u> </u>			_
···•	<u> </u>		te included in the laboratory data package?	Х				I
			entration of the lowest non-zero calibration	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?						2
R10	OI Other problems/anomalies				X			
		Are all known problems/anomalies/special conditions noted in this LRC and ER?						
		Was applicable and available techno	logy used to lower the SDL to minimize the	X				
			under the Texas Laboratory Accreditation					
		Program for the analytes, matrices, a	nd methods associated with this laboratory	X			l	3
		data package?		<u></u>	L	L_	L_	<u> </u>



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2087	75		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS2	232,	VX16	73	
#1	A ²	DESCRIPTION						ER#5
S1	OI	Initial calibration (ICAL)						
			e response factors for each analyte within QC	х				
		limits?		^				
		Were percent RSDs or correlation co	efficient criteria met?	Х				
		Was the number of standards recom-	mended in the method used for all analytes?	Х				
		Were all points generated between the	ne lowest and highest standard used to	х				
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
		Has the initial calibration curve been	verified using an appropriate second source	x				
		standard?		_^_				
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method		Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each		Х				
	_		e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Х</th><th></th><th></th></mdl?<>			Х		
S3	0	Mass spectral tuning						
		Was the appropriate compound for the		Х				
		Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)						
			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		`	matograms, spectral data) reviewed by an	Х				
		analyst?	tti fld th d-t2					
		Were data associated with manual in	tegrations flagged on the raw data?	Х	_			
S6	0	Dual column confirmation Oid dual column confirmation results meet the method-required OC2				Х		
S7	0		Did dual column confirmation results meet the method-required QC?					
51	-	Tentatively identified compounds (is spectra and TIC data subject to appropriate	1	_			
		checks?	is specifia and TiC data subject to appropriate			Χ		
S8	1	Interference Check Sample (ICS) r	eculte					
	-	Were percent recoveries within metho				Х		
S9	ı	-	kes, and method of standard additions			Λ.		
	•		, and the linearity within the QC limits					
		specified in the method?	, and the initiality mains the QC initial			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each		Х	\neg			
		Is the MDL either adjusted or support		Х				5
S11	OI	Proficiency test reports						
			ceptable on the applicable proficiency tests or	х				
	<u></u>	evaluation studies?		Λ.	_			
S12	OI	Standards documentation						
		Are all standards used in the analyse	s NIST-traceable or obtained from other	х				
		appropriate source?		^				
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/and	•	Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with		X				
		Is documentation of the analyst's competency up-to-date and on file?						
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)						
		Are all the methods used to generate the data documentated, verified, and						
		validated, where applicable?		Х				
S16	OI	Laboratory standard operating pro						
		Are laboratory SOPs current and on f	ile for each method performed?	Х				



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports						
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20875						
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VX1673						
ER# ¹	Description	on								
	For reporting	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method						
1		SDL is defined in the report as the MI								
			ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not						
2	included in the laboratory data package.									
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and									
3		, ,	kage for analytes that are listed in the Texas F	ields of Accreditation.						
4		ies are discussed in the case narrative								
	1	, ,	or Method RSKSOP-147/175. The component	s reported are not listed or						
5	do not hav	e values in the Texas TRRP PCL table	es.							
l										

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20875

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	File ID X0087062.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

1868-53-7 Dibromofluoromethane 105% 72-122%	
17060-07-0 1,2-Dichloroethane-D4 95% 68-124% 2037-26-5 Toluene-D8 99% 80-119% 460-00-4 4-Bromofluorobenzene 98% 72-126%	



Method: SW846 8260B

Blank Spike Summary Job Number: TC20875

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample VX1673-BS	File ID X0087060. D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	72-122%
17060-07-0	1,2-Dichloroethane-D4	99%	68-124%
2037-26-5	Toluene-D8	101%	80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20875

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20875

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample GSS232-MB	File ID SS005026.D	DF 1	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20875

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS232-BS	File ID SS005023.D	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound		Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	2	21.5	21.0	98	68-139
74-85-1	Ethene	4	57.4	54.7	95	52-145
74-84-0	Ethane	4	43.3	56.7	131	68-131
74-98-6	Propane	(60.6	68.2	113	69-131
75-28-5	Isobutane	7	72.5	77.3	107	72-131
106-97-8	Butane	2	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20875

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20890-1MS	SS005029.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* 6 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20875

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20875-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.	Dec 12, 2012 13:09 pm			
Job Number:	TC20873			
Account:	EarthCon C	onsultants		
Project:	Quarterly Well Sampling, Parker County, Texa			
Project Number:	3rd Quarter / Dup			
	Legend:	Hit		
Client Sample ID:		DUP-120112		
Lab Sample ID:		TC20873-1		
Date Sampled:		12/01/2012		
Matrix:		Ground Water		
GC/MS Volatiles (SW846 8260B)				
	1 1			
Benzene	mg/l	0.00034 U		
Toluene	mg/l	0.00033 U		
Ethylbenzene	mg/l	0.00032 U		
Xylene (total)	mg/l	0.00087 U		
GC Volatiles (RSKSOP-147/175)				
Methane	mg/l	0.647		
Ethene	mg/l	0.00050 U		
Ethane	mg/l	0.0249		
Propane	mg/l	0.00075 U		
Isobutane	mg/l	0.00075 U		
Butane	mg/l	0.00075 U		



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / Dup

Accutest Job Number: TC20873

Sampling Date: 12/01/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No:

TC20873

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / Dup

Sample Number	Collected Date		Received	Matrix d Code Type		Client Sample ID
TC20873-1	12/01/12	00:00	12/04/12	AQ	Ground Water	DUP-120112





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20873

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:10:29 P

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20873. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20873

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/01/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20873-1	DUP-120112					
Methane Ethane		0.647 0.0249	0.0050 0.0010	0.0030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175



Sample Results
Report of Analysis



4

Report of Analysis

Client Sample ID: DUP-120112 Lab Sample ID: TC20873-1

 Lab Sample ID:
 TC20873-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087070.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 96% 97% 97%		72-122% 68-124% 80-119% 72-126%		

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit E = Indicates value exceeds calibration range J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

 Client Sample ID:
 DUP-120112

 Lab Sample ID:
 TC20873-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005041.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005042.D	10	12/06/12	LT	n/a	n/a	GSS232

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.647 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0249	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



Received By

TC20873: Chain of Custody Page 1 of 4

Preserved where applicable





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC208	373 Clie	ent: EARTHCON CO	NSULTANT:	S Projec	t: 3RD QTR WEI	LL SAMPLING	3,PARKE	R COUNTY,T
Date / Time Received: 12/4/2	012	Delivery Method	d:	Client Airbill #	's:			
No. Coolers: 1	Therm ID: IR6			Temp Ad	justment Factor:	0.2		
Cooler Temps (Initial/Adjusted	I): #1: (2.2/2.4)							
Cooler Security Y	or N	<u>Y</u>	or N	Sample Integrity - Docu	mentation	<u>Y</u> 0	r N	
1. Custody Seals Present:		C Present:		Sample labels present or	n bottles:	\checkmark		
2. Custody Seals Intact: ✓	4. Smpl I	Dates/Time OK 🗸		Container labeling compl	ete:	\checkmark		
Cooler Temperature	Y or N			3. Sample container label /	COC agree:	✓		
1. Temp criteria achieved:	v			Sample Integrity - Cond	lition	<u>Y</u> 0	or N	
Cooler temp verification:	Infared Gun			Sample recvd within HT:		✓		
Cooler media:	Ice (Bag)			2. All containers accounted	for:	~	П	
Quality Control Preservation	Y or N	N/A WTB	STB	3. Condition of sample:		Broken	/ Leaking	
1. Trip Blank present / cooler:	v			Sample Integrity - Instru	uctions	Υo	or N	N/A
2. Trip Blank listed on COC:				Analysis requested is cle		<u> </u>		
3. Samples preserved properly:	v			Bottles received for unsp	pecified tests		✓	
4. VOCs headspace free:	2			3. Sufficient volume recvd	for analysis:	✓		
				4. Compositing instructions	clear:			v
				5. Filtering instructions clea	ar:			✓
Comments -Received trip blank r			-					
-Received one of six	vials broken, limited	volume.						
Comments -Received trip blank re-Received one of six		volume.						

TC20873: Chain of Custody Page 2 of 4

Page 1 of 3





Page 2 of 3

5.1

Accutest Job Number: TC20873

CSR: Elessa Sommers Response Date: 12/4/2012

Response: Trip blank is on separate report. Sufficient volume received to perform the requested analyses.

TC20873: Chain of Custody Page 3 of 4







Sample Receipt Log

 Job #:
 TC20873
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20873-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20873-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20873-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20873-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20873-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20873: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20873 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody docume	entation;
	R2	Sample identification cross-ref	ference;
Ģ	R3	Test reports (analytical data sh	neets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	or blank samples;
	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix:	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		its (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELAC	Caccreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	e of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	ooratory Acc	creditation Program for all the me	ethods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report	. This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where note	ed by the laboratory in the attached exception reports. By my signature below, I
affirm to the	ne best of m	ny knowledge, all problems/anon	nalies, observed by the laboratory as having the potential to affect the quality of
the data, I	nave been i	dentified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable	•	ption under 30 TAC&25.6 and was last inspection by
[]			April 2011. Any findings affecting the data in this laboratory data package are
			s herein. The official signing the cover page of the report in which these data are
		used is responsible for releasing	ng this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	ı	ABORATORY REVIEW	CHECKLIST: REPORTABLE	ΠΔΤ	Δ.			
Laboratory		Accutest Gulf Coast	LRC Date:		12/2	012		
Laboratory	ivallie.	Quarterly Well Sampling, Parker		12/	12/2	012		
Project Na	me:	County, Texas	Laboratory Project Number:	тс	2087	73		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	+		VX16	373	
#1	A ²	DESCRIPTION	Trop Edicit Hambor(o).					ER # ⁵
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
			andard conditions of sample acceptability	X	Π		Г	
		upon receipt?	_ ^					
		Were all departures from standard co	onditions described in an exception report?	Х				
R2	OI	Sample and quality control (QC) id	lentification					
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-r	eferenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyze		X				
			all other raw values bracketed by calibration	l x				
		standards?						
		Were calculations checked by a peer	·	X	_			
		Were all analyte identifications check		X	_		-	
		Were all regults for soil and addiment	d for all analytes not detected? t samples reported on a dry weight basis?	X	\vdash		\vdash	
		Were % moisture (or solids) reported		-		X	-	
			platile analysis extracted with methanol per	1			 	
		SW846 Method 5035?	James analysis skilasisa mar mealansi per			Х		
		If required for the project, are TIC's re	eported?			Х		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extra	ction?	Х				
		v i	all samples within the laboratory QC limits?	Х				
R5	OI	Test reports/summary forms for bl						
		Were appropriate type(s) of blanks a	· ·	X				
	Were blanks analyzed at the appropriate frequency? Were method blanks taken through the entire analytical process, including							
		_		X				
		preparation and, if applicable, cleanu Were blank concentrations <mql?< td=""><td>p procedures?</td><td>X</td><td>_</td><td></td><td></td><td></td></mql?<>	p procedures?	X	_			
R6	OI	Laboratory control samples (LCS)	•	 ^				
-10		Were all COCs included in the LCS?		Х				
			tire analytical procedure, including prep and					
		cleanup steps?	, , , , , , , , , , , , , , , , , , , ,	X				
		Were LCSs analyzed at required free	quency?	Х				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
			data document the laboratory's capability to	X				5
		detect the COCs at the MDL used to		<u> </u>				
		Was the LCSD RPD within QC limits			_	Х		
R7	OI	Matrix spike (MS) and matrix spike		V				
		Were MS/MSD analyzed at the appro	nalytes included in the MS and MSD?	X	\vdash		-	
		Were MS (and MSD, if applicable) %		+^	Х		 	4
		Were the MS/MSD RPDs within labor		X	<u> </u>		 	-
R8	OI	Analytical duplicate data	40 mmo.					
		Were appropriate analytical duplicate	es analyzed for each matrix?	Х				
		Were analytical duplicates analyzed	,	X				
		Were RPDs or relative standard devi	Τ̈́	Х			4	
R9	OI	Method quantitation limits (MQLs)						
		Are the MQLs for each method analy	te included in the laboratory data package?	Х				
		· · · · · · · · · · · · · · · · · · ·	entration of the lowest non-zero calibration	Х				
		Are unadjusted MQLs and DCSs included in the laboratory data package?						2
R10	OI	Other problems/anomalies						
		Are all known problems/anomalies/sp	X	\vdash	_	<u> </u>		
		Was applicable and available techno	X	_	_	-		
		,	under the Texas Laboratory Accreditation	_			l	•
			nd methods associated with this laboratory	X			l	3
data package?								



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/1	2/2012	2	
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC2	0873		
Reviewer		Anita Patel	Prep Batch Number(s):	1	32, VX	1673	
# ¹	I A ²	DESCRIPTION	[1.10p Zaton 11amzon(c).		NO NA		⁴ IFR#
 S1	OI	Initial calibration (ICAL)		120	110/11/	.	TEIX "
	 		e response factors for each analyte within QC		$\overline{}$	1	Т
		limits?	response factors for each analyte main Qu	X			
		Were percent RSDs or correlation co	efficient criteria met?	X	_	+	<u> </u>
		·	mended in the method used for all analytes?	X			1
			ne lowest and highest standard used to			+	
		calculate the curve?	io ionost and ingriost standard dood to	X			
		Are ICAL data available for all instrum	nents used?	X		+	
		Has the initial calibration curve been		_	+	1	
		standard?	vormed doing air appropriate second source	X			
S2	OI		erification (ICCV AND CCV) and continuing				
		Was the CCV analyzed at the method		Х	$\overline{}$	$\overline{}$	т —
			alyte within the method-required QC limits?	X			+
		Was the ICAL curve verified for each	·	X	_	+	+
		Was the absolute value of the analyte	 ^ 	X	_	-	
S3 O		Mass spectral tuning				_	
03 0		Was the appropriate compound for the	X	$\overline{}$	1	$\overline{}$	
		Were ion abundance data within the	· · · · · · · · · · · · · · · · · · ·	$\frac{\hat{x}}{x}$		+	-
S4	0	Internal standards (IS)	_^_				
- 34		Were IS area counts and retention tin	X	$\overline{}$	_	_	
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC limits?		_		_
- 55	UI.	Were the raw data (for example, chro				_	
		analyst?	matograms, spectral data) reviewed by an	X			
		Were data associated with manual in	tegrations flagged on the raw data?	X			-
S6	0	Dual column confirmation	tegrations hagged on the raw data:	^			
- 30	-	Did dual column confirmation results	most the method required OC2		Τ×	- 1	_
S7	0	Tentatively identified compounds (^			
31		If TICs were requested, were the mas		$\overline{}$	_	_	
		checks?		X			
S8		Interference Check Sample (ICS) re	oculto				
	<u> </u>	Were percent recoveries within metho			X	· T	$\overline{}$
S9	-		kes, and method of standard additions		^		
	<u> </u>		, and the linearity within the QC limits		$\overline{}$	_	_
		specified in the method?	, and the inteatity within the QC infiles		X		
S10	OI	Method detection limit (MDL) studi	oe .		_		
310	<u> </u>	Was a MDL study performed for each		X	$\overline{}$	т-	$\overline{}$
		Is the MDL either adjusted or support	, ,	$\frac{\hat{x}}{x}$			5
S11	OI	Proficiency test reports	ica by the analysis of Boos:	_^_	_		1 -
311			ceptable on the applicable proficiency tests or		$\overline{}$	т	$\overline{}$
		evaluation studies?	ceptable on the applicable proficiency tests of	X			
S12	OI	Standards documentation			_		_
- 012	<u> </u>		s NIST-traceable or obtained from other		$\overline{}$		_
		appropriate source?	3 THO I traceable of obtained from other	X			
S13	OI	Compound/analyte identification p	rocedures		_		_
313	<u> </u>	Are the procedures for compound/ana		ΧI	$\overline{}$	1	$\overline{}$
S14	OI	Demonstration of analyst compete	•	^		_	
	 	Was DOC conducted consistent with		X			T
		Is documentation of the analyst's com		$\frac{1}{x}$	\dashv	+	+
S15	OI		ion for methods (NELAC Chapter 5)				
313	, J		the data documentated, verified, and				
		validated, where applicable?	ine data documentated, verified, and	X			
S16	OI	Laboratory standard operating pro	pooduros (SOBs)				
310	U	Are laboratory SOPs current and on f		X			T
l	1	Inic iaboratory SOFS current and Off I	no for cacif inclificu performeu?	. ^ .	- 1	- 1	1



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012							
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20873							
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VX1673							
ER# ¹	Description	n									
	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method										
1	blank. The	SDL is defined in the report as the MI	DL. The state of t	·							
	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not										
2	included in	the laboratory data package.									
	1	,	exas Laboratory Accreditation Program for the								
3			kage for analytes that are listed in the Texas F	ields of Accreditation.							
4		es are discussed in the case narrative	<u></u>								
	1	, ,	r Method RSKSOP-147/175. The component	s reported are not listed or							
5	do not hav	e values in the Texas TRRP PCL table	es.								

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20873

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	File ID X0087062.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	105% 95% 99% 98%	72-122% 68-124% 80-119% 72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20873

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-BS	File ID X0087060.D	DF 1	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	101% 99% 101%	72-122% 68-124% 80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20873

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20873

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample GSS232-MB	File ID SS005026.D	DF 1	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20873

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS232-BS	File ID SS005023.D	DF 1	Analyzed 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound		Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	2	21.5	21.0	98	68-139
74-85-1	Ethene	4	57.4	54.7	95	52-145
74-84-0	Ethane	4	43.3	56.7	131	68-131
74-98-6	Propane	(60.6	68.2	113	69-131
75-28-5	Isobutane	7	72.5	77.3	107	72-131
106-97-8	Butane	2	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20873

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample TC20890-1MS TC20890-1 TC20890-1	File ID SS005029.D SS005027.D SS005030.D	1	Analyzed 12/06/12 12/06/12 12/06/12	By LT LT LT	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch GSS232 GSS232 GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* 6 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20873

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20873-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:10 pm				
Job Number:	TC20877					
Account:	EarthCor	EarthCon Consultants				
Project:	Quarterly	Quarterly Well Sampling, Parker County, Tex				
Project Number:	3rd Quar	ter / WW19-Wil				
	Legend:	Hit				
Client Sample ID:		WW19-WIL-120112				
Lab Sample ID:		TC20877-1				
Date Sampled:		12/01/2012				
Matrix:		Ground Water				
GC/MS Volatiles (SW846 8260B)						
Benzene	mg/l	0.00034 U				
Toluene	mg/l	0.00033 U				
Ethylbenzene	mg/l	0.00032 U				
Xylene (total)	mg/l	0.00087 U				
GC Volatiles (RSKSOP-147/175)						
Methane	mg/l	3.54				
Ethene	mg/l	0.00050 U				
Ethane	mg/l	0.439				
Propane	mg/l	0.00075 U				
Isobutane	mg/l	0.00075 U				
Butane	mg/l	0.00075 U				



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW19-Wil

Accutest Job Number: TC20877

Sampling Date: 12/01/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Elessa Sommers 713-271-4700

Laboratory Director

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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Sample Summary

EarthCon Consultants

Job No:

TC20877

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW19-Wil

Sample				Matrix		Client	
Number	Date	Time By	Received	Code	Туре	Sample ID	
TC20877-1	12/01/12	14:05	12/04/12	AQ	Ground Water	WW19-WIL-120112	





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20877

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 10:29:44 A

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20877. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20877

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/01/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method	
TC20877-1	WW19-WIL-120112						
Methane Ethane		3.54 0.439	0.050 0.0010	0.030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175	





Sample Results		
Report of Analysis		



4

Report of Analysis

Client Sample ID: WW19-WIL-120112

 Lab Sample ID:
 TC20877-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0087074.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	106% 97% 98% 98%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



4

Report of Analysis

Client Sample ID: WW19-WIL-120112

 Lab Sample ID:
 TC20877-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005057.D	1	12/07/12	LT	n/a	n/a	GSS233
Run #2	SS005058.D	100	12/07/12	LT	n/a	n/a	GSS233

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	3.54 a	0.050	0.030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.439	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





•		
N	lisc.	Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



6	ALJUI EDI.							mar ===						1	FED-EX	Tracking	#			ı	Bottle Or	der Cont	rol#		_	
	Laboratories			10165 Har	win Dr, Sto 3-271-4700									ŀ	Accutes	t Quote #					Accutest	Job#	10	17	78	77
				100		ccutest.co																		<u> </u>	, o	7/
	Client / Reporting Information			Project	Informat	tion	100		100									Req	uest	ed	Ana	yse	5		\dashv	Matrix Codes
Col	ompany Name	Project Name:												1		.									1	
	* *	Third Owner	d. Wall Campli	na Barkar C	County 7	Tovae										aue									l.	DW - Drinking Water
Stre	ert Address	Street	rly Well Sampli	ng, Farker C	Journey,	IEAAS	200		EM56			10000	1714-279	400 E00		¥	i									GW - Ground Water
					Billing	nformatic	n / if	differ	ent fr	om Re	nort	to)				ž	- 1									WW - Water SW - Surface Water
Cit	800 Sugar Grove Blvd., Suite 390	City		State	Company		,,, <u>, ,,</u>									Isobutane, Methane,										SO - Soil
Ste	afford TX 77477															l g										SL- Sludge SED-Sediment
	roject Contact E-mail	Project #			Street Ad	idress										so	i							. 1		OI - Oil
Ga	abriela Floreslovo															Ethene, I								.	- 1	LIQ - Other Liquid AIR - Air
	hone# Fax#	Client Purchase	Order#		City					State			Zip			the 175	1							.		SOL - Other Solid WP - Wipe
	31-201-3513															", X									1	FB-Field Blank
Sa	ampler(s) Name(s) Phone #	Project Manager	•		Attention	4									8	le &							ŀ			
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	1		Colle	ction	Т	Г	Нт	E	T	T	la la	ed Down	ĪŢ	# [~	X 8	ane,									Г	
Acc	cculesi		1			# of	豆	NaOH	HNO3	HZSO4 NONE	DI Wat	MEOH	NaHSC	PNCO	BTEX 8260B	Butane, Ethane, E Propane by RSK-					1				ı	LAB USE ONLY
San	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	bottles	Ĭ	žΝ	Ī	T Z	Δ	ΣF	z	ū o		-				<u> </u>	-			\vdash	-	
1	1 WW19-W:1-120612	12/1/12	1405	JEB	GW	6	K						Ш		1	K								\sqcup		
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	X Standard	Approved By (Ac	cutest PM): / Date:			Commer	rcial '	'A" (L	evel :	1)		r X														
	5 Day RUSH					Commer				2)				Forma	t											
1	4 Day RUSH					FULT1 (Other													
	3 Day RUSH					REDT1 Comme)																	
	☐ 2 Day RUSH ☐ 1 Day EMERGENCY					Comme	Ciai		nercia	al "A" =	Res	uits Or	ulv				1									
	Emergency & Rush T/A data available VIA Lablink		B										-	ımmary												
L	1- 1	09	27 E					Comr	nercla	al "C" :	Res	ults + 0	QC &	Surrog	ate Sur		L				- Constitution	n regggieren	trones no vie	angtististinA	Activities of	
W.		-12 s	ample Custody r	nust be docu	mented t	elow ea	ch ti	me sa					essic	on, inc	luding	courie	r delive	Date 1	imo:		Parch	red By:			AL NOTHER	
1	Relinquished by Sampler: Date Time:	La 1600	Received By:	$\overline{}$	/			_	12	linquist	eo 15	y.						Jake			2					
٤	youry 10/2	11 Drewy	Received By:						Rel	Minguist	SIP.	v:					-	Date 1	ime:		Receiv	ved By:				
1 3	Relinquished by Sampler: Date Time:		3					_/	14	_	_										4					
T	Relinquished by: Date Time		Received By:						eu	stody S	ieal#				Intact		Presen	ved who	re applic	able			On Is	e	Cooler	Temp.
5	5		5											U	Not in	itact		ш								

TC20877: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC208	377	Client:	EARTHCON CO	ONSULTAN ⁻	ΓS	Project:	3RD QTR WEL	L SAMPLI	NG,PAR	KER COUNTY,T
Date / Time Received: 12/4/2	012		Delivery Metho	od:	Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6				Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adjusted	i): #1: (2.2/	(2.4)								
Cooler Security Y	or N		<u>Y</u>	or N	Sample Integri	ity - Docume	ntation	<u>Y</u>	or N	<u>L</u>
1. Custody Seals Present:		3. COC Pre			Sample labels	s present on bo	ottles:	✓		
2. Custody Seals Intact:	☐ 4.	Smpl Dates	s/Time OK 🗸		Container labe	eling complete:		✓]
Cooler Temperature	Y or N	<u></u>			3. Sample conta	ainer label / CO	C agree:	✓]
1. Temp criteria achieved:	V]			Sample Integr	ritv - Conditio	on	<u>Y</u>	or N	<u>L</u>
Cooler temp verification:	Infared G	un			Sample recvd		 -	~		٥
Cooler media:	Ice (bag	J)			2. All containers			✓	Г	٦
Quality Control Preservation	Y or N	N N/A	WTE	STB	3. Condition of s	sample:			Intact	
1. Trip Blank present / cooler:	V		\checkmark		Sample Integr	rity - Instruct	ions	Υ	or N	N/A
2. Trip Blank listed on COC:					1. Analysis requ			<u> </u>		
3. Samples preserved properly:	V]			2. Bottles receiv	ved for unspeci	ified tests		<u>✓</u>	
4. VOCs headspace free:	v				3. Sufficient vol	ume recvd for	analysis:	✓		
					4. Compositing	instructions cle	ear:			\checkmark
					5. Filtering instr	ructions clear:				~
Comments - Received trip blank	not listed on	COC.			•					
Comments - Received trip blank	not listed on	COC.								

TC20877: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC20877

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

TC20877: Chain of Custody Page 3 of 4









Sample Receipt Log

 Job #:
 TC20877
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20877-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20877-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20877-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20877-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20877-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20877-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20877: Chain of Custody

Page 4 of 4



Appendix A Laboratory Data Package Cover Page

TC20877 This data package consists of

Richard Rodriguez

		ture page, the laboratory review check		
	R1	Field chain-of-custody documentation		
	R2	Sample identification cross-reference		
	R3	Test reports (analytical data sheets) f	or each environmental sample that includes:	
		a)	Items consistent with NELAC 5.13 or ISO/IEC	2 17025 Section 5.10
		b)	dilution factors,	
		c)	preparation methods,	
		d)	cleanup methods, and	
		e)	if required for the project, tentatively identified	d compounds (TICs).
	R4	Surrogate recovery data including:		
		a)	Calculated recovery (%R), and	
		b)	The laboratory's surrogate QC limits.	
	R5	Test reports/summary forms for blank	c samples;	
	R6	Test reports/summary forms for labor	atory control samples (LCSs) including:	
		a)	LCS spiking amounts,	
		b)	Calculated %R for each analyte, and	
		c)	The laboratory's LCS QC limits.	
	R7	Test reports for project matrix spike/n	natrix spike duplicates (MS/MSDs) including:	
		a)	Samples associated with the MS/MSD clearly	y identified,
		b)	MS/MSD spiking amounts,	
		c)	Concentration of each MS/MSD analyte mea	sured in the parent and
		d)	Calculated %Rs and relative percent differen	•
		e)	The laboratory's MS/MSD QC limits	,,,,
	R8	Laboratory analytical duplicate (if app		
•		a)	The amount of analyte measured in the dupli	cate.
		b)	The calculated RPD, and	,
		c)	The laboratory's QC limits for analytical dupli	icates
ū	R9	•	QLs) and detectability check sample results for	
	R10	Other problems or anomalies.	(25) and detectability check cample recalled to	out analyte for out.
The Excep	tion Report	for each "No" or "Not Reviewed (NR)"	item in Laboratory Review Checklist and for e	ach analyte, matrix, and
			ditation under the Texas Laboratory Accredita	-
Texas Laborate the Except requirement affirm to the	oratory Acci ion Report. Ints of the more best of my	reditation Program for all the methods, This data package has been reviewed ethods used, except where noted by the work knowledge, all problems/anomalies,	s laboratory data package. This laboratory is Nanalytes, and matrices reported in this data part by the laboratory and is complete and technine laboratory in the attached exception reports observed by the laboratory as having the pote atory Review Checklist, and no information or	ackage except as noted in cally compliant with the . By my signature below, I ntial to affect the quality of
	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by	′
[]		noted in the Exception Reports herein	011. Any findings affecting the data in this lab- n. The official signing the cover page of the re- data package and is by signature affirming th	port in which these data are
QA Manag	<u>jer</u>			
Name (Prir	nted)	Signature	Official Title (printed)	Date

Laboratory Director

12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά		
Laboratory	Name:	Accutest Gulf Coast LRC Date:	12	12/2	012	
		Quarterly Well Sampling, Parker				
Project Na	me:	County, Texas Laboratory Project Number:	+	2087		
Reviewer	Name:	Anita Patel Prep Batch Number(s):			VX16	
#1	A ²	DESCRIPTION	YES	NO	NA³	NR⁴ ER # ⁵
R1	OI	CHAIN-OF-CUSTODY (C-O-C):				
		Did samples meet the laboratory's standard conditions of sample acceptability	X			
		upon receipt?	X	Н		
	01	Were all departures from standard conditions described in an exception report?		ш		
R2	OI	Sample and quality control (QC) identification	V			
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X			
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X	Ш		
R3	OI	Test reports	. V		-	
		Were samples prepared and analyzed within holding times?	X	Н		
		Other than those results <mql, all="" bracketed="" by="" calibration="" other="" raw="" standards?<="" td="" values="" were=""><td>X</td><td></td><td></td><td></td></mql,>	X			
		Were calculations checked by a peer or supervisor?	X	Н		
		Were all analyte identifications checked by a peer or supervisor?	X	H	_	
		Were sample detection limits reported for all analytes not detected?	X			
		Were all results for soil and sediment samples reported on a dry weight basis?	+^	\vdash	Х	
		Were % moisture (or solids) reported for all soil and sediment samples?			X	
		Were bulk soils/solids samples for volatile analysis extracted with methanol per				
		SW846 Method 5035?			Х	
		If required for the project, are TIC's reported?			Х	
R4	0	Surrogate recovery data				
		Were surrogates added prior to extraction?	Х			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	Х			
R5	OI	Test reports/summary forms for blank samples				
		Were appropriate type(s) of blanks analyzed?	Х			
		Were blanks analyzed at the appropriate frequency?	X			
		Were method blanks taken through the entire analytical process, including	l x			
		preparation and, if applicable, cleanup procedures?		Ш		
- DC	-	Were blank concentrations <mql?< td=""><td>X</td><td>Ш</td><td>_</td><td></td></mql?<>	X	Ш	_	
R6	OI	Laboratory control samples (LCS):	. V		_	
		Were all COCs included in the LCS? Was each LCS taken through the entire analytical procedure, including prep and	X	\vdash		
		cleanup steps?	X			
		Were LCSs analyzed at required frequency?	X	Н		
		Were LCSS analyzed at required frequency: Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X			
		Does the detectability check sample data document the laboratory's capability to				
		detect the COCs at the MDL used to calculate the SDLs?	X			5
		Was the LCSD RPD within QC limits?			Х	
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data				
		Were the project/method specified analytes included in the MS and MSD?	Х			
		Were MS/MSD analyzed at the appropriate frequency?	Х	П		
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?		Х		4
		Were the MS/MSD RPDs within laboratory QC limits?	Х			
R8	OI	Analytical duplicate data				
		Were appropriate analytical duplicates analyzed for each matrix?	Х			
		Were analytical duplicates analyzed at the appropriate frequency?	Х			
		Were RPDs or relative standard deviations within the laboratory QC limits?	Х			
R9	OI	Method quantitation limits (MQLs):				
		Are the MQLs for each method analyte included in the laboratory data package?	X	Ш		
		Do the MQLs correspond to the concentration of the lowest non-zero calibration	X	Ш		
		Are unadjusted MQLs and DCSs included in the laboratory data package?		Х		2
R10	OI	Other problems/anomalies				
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X	Ш		
		Was applicable and available technology used to lower the SDL to minimize the	X	Н		
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation	,			_
		Program for the analytes, matrices, and methods associated with this laboratory	X			3
		data package?		Ш		



Laboratory Name:		Accutest Gulf Coast	Accutest Gulf Coast LRC Date:					12/12/2012				
Project Na		Quarterly Well Sampling, Parker		TC20877								
Reviewer		Anita Patel	Prep Batch Number(s):	GSS2			:73					
#1	I A ²	DESCRIPTION	Trop Bater (4umber(3).					ER#				
 S1	OI OI	Initial calibration (ICAL)		ILO	IVO	INA	INIX	LIX#				
31	01		e response factors for each analyte within QC									
		limits?	e response factors for each analyte within QC	X								
		Were percent RSDs or correlation co	officient criteria met?	X								
	Was the number of standards recommended in the method used for all analytes?											
				Х								
			ne lowest and highest standard used to	X								
		calculate the curve?		.,								
		Are ICAL data available for all instrum		Х								
	Has the initial calibration curve been verified using an appropriate second source											
	standard?											
S2	OI		erification (ICCV AND CCV) and continuing									
		Was the CCV analyzed at the method		Х								
			alyte within the method-required QC limits?	X								
			/as the ICAL curve verified for each analyte?									
			e concentration in the inorganic CCB <mdl?< td=""><td>\Box</td><td></td><td>Х</td><td></td><td></td></mdl?<>	\Box		Х						
S3	0	Mass spectral tuning										
		Was the appropriate compound for the	ne method used for tuning?	Х								
		Were ion abundance data within the	Vere ion abundance data within the method-required QC limits?									
S4	0	Internal standards (IS)										
		Were IS area counts and retention tin	Were IS area counts and retention times within the method-required QC limits?									
S5	OI	Raw data (NELAC Section 5.5.10)										
Were the raw data (for example, chromatograms, spectral data) reviews			matograms, spectral data) reviewed by an	х								
	analyst?		^									
		Were data associated with manual in	tegrations flagged on the raw data?	Х								
S6	0	Dual column confirmation										
		Did dual column confirmation results	meet the method-required QC?			Х						
S7	0	Tentatively identified compounds	(TICs):									
			s spectra and TIC data subject to appropriate									
		checks?	, , , , , ,			Х						
S8	1	Interference Check Sample (ICS) r	esults									
		Were percent recoveries within method	od QC limits?			Х						
S9			kes, and method of standard additions									
			, and the linearity within the QC limits									
		specified in the method?	,			Х						
S10	OI	Method detection limit (MDL) studi	es									
	<u> </u>	Was a MDL study performed for each		Х								
		Is the MDL either adjusted or support	, ,	X				5				
S11	OI	Proficiency test reports		_^								
	<u> </u>		ceptable on the applicable proficiency tests or									
		evaluation studies?	ceptable on the applicable proficiency tests of	X								
S12	OI	Standards documentation										
312	- Oi		s NIST-traceable or obtained from other									
			3 NIO 1-li aceable oi obtained ironi other	X								
642	appropriate source?			_								
S13	OI					l e	1					
644		Are the procedures for compound/analyte identification documented?										
S14												
	Was DOC conducted consistent with NELAC Chapter 5?					<u> </u>						
		Is documentation of the analyst's com		Х								
S15	S15 OI Verification/validation documentation for methods (NELAC Chapter 5)											
			the data documentated, verified, and	l x l		1						
validated, where applicable?												
S16	OI	Laboratory standard operating pro										
	Are laboratory SOPs current and on file for each method performed?											



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports										
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012							
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20877							
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VX1673							
ER# ¹	ER# ¹ Description										
1	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method blank. The SDL is defined in the report as the MDL.										
2		ng purposes, the method blank represon the laboratory data package.	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not							
3	1	,	exas Laboratory Accreditation Program for the kage for analytes that are listed in the Texas F								
4	All anomal	ies are discussed in the case narrative	ı.								
5	The laboratory does not perform DCS analysis for Method RSKSOP-147/175. The components reported are not listed or do not have values in the Texas TRRP PCL tables.										

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20877

PESTXST EarthCon Consultants **Account:**

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-MB	File ID X0087062. D	DF	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	99%	80-119%
460-00-4	4-Bromofluorobenzene	98%	72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20877

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VX1673-BS	File ID X0087060.D	DF	Analyzed 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	72-122%
17060-07-0	1,2-Dichloroethane-D4	99%	68-124%
2037-26-5	Toluene-D8	101%	80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20877

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20877

Job Number:

PESTXST EarthCon Consultants **Account:**

Project: Quarterly Well Sampling, Parker County, Texas

Sample GSS233-MB	File ID SS005056.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20877

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-BS	File ID SS005054.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary

Job Number: TC20877

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20970-2MS ^a TC20970-2 ^a	File ID SS005067.D SS005066.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20877

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

	Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D		Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233
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The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 15:05 pm				
Job Number:	TC20885	C20885				
Account:	EarthCor	n Consultants				
Project:	Quarterly	Well Sampling, Parker County, Texas				
Project Number:	3rd Quar	ter / WW18-Str				
	Legend:	Hit				
Client Sample ID:		WW18-STR-120212				
Lab Sample ID:		TC20885-1				
Date Sampled:		12/02/2012				
Matrix:		Ground Water				
GC/MS Volatiles (SW846 8260B)						
Benzene	mg/l	0.00034 U				
Toluene	mg/l	0.00033 U				
Ethylbenzene	mg/l	0.00032 U				
Xylene (total)	mg/l	0.00087 U				
GC Volatiles (RSKSOP-147/175)						
Methane	mg/l	1.26				
Ethene	mg/l	0.00050 U				
Ethane	mg/l	0.0921				
Propane	mg/l	0.00075 U				
Isobutane	mg/l	0.00075 U				
Butane	mg/l	0.00075 U				



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW18-Str

Accutest Job Number: TC20885

Sampling Date: 12/02/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 30



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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Sample Summary

EarthCon Consultants

Job No:

TC20885

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW18-Str

Sample Number	Collected Date		Received	Matr Code		Client Sample ID
TC20885-1	12/02/12	11:50	12/04/12	AQ	Ground Water	WW18-STR-120212





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20885

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 1:52:04 PM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20885. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK578

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20506-1MS, TC20506-1MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- TC20970-2MS: Sample was not preserved to a pH < 2.

Matrix AQ Batch ID: GSS234

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC21021-1DUP, TC21021-2MS were used as the QC samples indicated.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Summary of Hits Job Number: TC20885

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method				
TC20885-1	WW18-STR-120212									
Methane Ethane		1.26 0.0921	0.010 0.0010	0.0060 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175				



Sample Results	
Report of Analysis	



4

Report of Analysis

Client Sample ID: WW18-STR-120212

 Lab Sample ID:
 TC20885-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	Analytical Batch	
Run #1	K13198.D	1	12/06/12	EM	n/a	n/a	VK578	
Run #2								

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	106% 106% 105% 104%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WW18-STR-120212

 Lab Sample ID:
 TC20885-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005077.D	1	12/07/12	LT	n/a	n/a	GSS233
Run #2	SS005101.D	20	12/10/12	LT	n/a	n/a	GSS234

RSK147 Special List

Compound	Result	MQL	SDL	Units	Q
Methane	1.26 a	0.010	0.0060	mg/l	
Ethene	0.00050 U	0.0010	0.00050	mg/l	
Ethane	0.0921	0.0010	0.00050	mg/l	
Propane	0.00075 U	0.0015	0.00075	mg/l	
sobutane	0.00075 U	0.0015	0.00075	mg/l	
Butane	0.00075 U	0.0015	0.00075	mg/l	
	Compound Methane Ethene Ethane Propane sobutane Butane	Methane 1.26 a Ethene 0.00050 U Ethane 0.0921 Propane 0.00075 U sobutane 0.00075 U	Methane 1.26 a 0.010 Ethene 0.00050 U 0.0010 Ethane 0.0921 0.0010 Propane 0.00075 U 0.0015	Methane 1.26 a 0.010 0.0060 Ethene 0.00050 U 0.0010 0.00050 Ethane 0.0921 0.0010 0.00050 Propane 0.00075 U 0.0015 0.00075 sobutane 0.00075 U 0.0015 0.00075	Methane 1.26 a 0.010 0.0060 mg/l Ethene 0.00050 U 0.0010 0.00050 mg/l Ethane 0.0921 0.0010 0.00050 mg/l Propane 0.00075 U 0.0015 0.00075 mg/l sobutane 0.00075 U 0.0015 0.00075 mg/l

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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4800 Sugar Grove Blvd., Suite 390 City State Zip	City		State	Company									\neg		ane										SO - Soil
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Project Contact E-mail	Project #			Street Ad	dress										lso										OI - Oil
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TC20885: Chain of Custody Page 1 of 4







Accutest Laboratories Sample Receipt Summary

Accutest Job Number: TC20885	Client: E	EARTHCON CONSULTANT	S Pro	oject: 3RD QTR WEI	LL SAMPLING	,PARKE	R COUNTY,T
Date / Time Received: 12/4/2012	I	Delivery Method:	Client Airb	ill #'s:			
No. Coolers:1 Therm ID:	IR6		Temp	Adjustment Factor:	0.2		
Cooler Temps (Initial/Adjusted): #1: (2.2	<u>/2.4)</u>						
Cooler Security Y or N		Y or N	Sample Integrity - Do	ocumentation	<u>Y o</u>	<u>r N</u>	
 Custody Seals Present: ✓ Custody Seals Intact: ✓ 4. 	COC Pre Smpl Dates/		Sample labels prese Container labeling co		✓		
Cooler Temperature Y or N	<u>L</u>		Sample container lab	•	✓		
 Temp criteria achieved: Cooler temp verification: Infared G			Sample Integrity - C 1. Sample recvd within		<u>Y o</u>	<u>r N</u>	
3. Cooler media: Ice (bac Quality Control Preservation Y or I		WTB STB	All containers accounts Condition of sample:	ited for:	✓ Int	□ act	
1. Trip Blank present / cooler:			Sample Integrity - In	structions	<u>Y o</u>	r N	N/A
2. Trip Blank listed on COC:			1. Analysis requested	s clear:	✓		
3. Samples preserved properly:			2. Bottles received for	unspecified tests		✓	
4. VOCs headspace free: ✓			3. Sufficient volume re	,	✓		
			Compositing instruc				\checkmark
			5. Filtering instructions	clear:			✓
Comments -Received tripblank not listed on C	OC.						

TC20885: Chain of Custody Page 2 of 4

Page 1 of 3







Problem Resolution

Accutest Job Number: TC20885

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

TC20885: Chain of Custody Page 3 of 4





Sample Receipt Log

 Job #:
 TC20885
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20885-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20885-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20885-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20885-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20885-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20885-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20885: Chain of Custody

Page 4 of 4



Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20885 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody documentation	n;
	R2	Sample identification cross-reference	e;
	R3	Test reports (analytical data sheets)	for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blan	k samples;
	R6	Test reports/summary forms for labor	ratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/r	matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if app	plicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MC	QLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
		, ,	item in Laboratory Review Checklist and for each analyte, matrix, and
method for	which the I	aboratory does not hold NELAC accre	editation under the Texas Laboratory Accreditation Program.
Release S	tatement:	I am responsible for the release of this	s laboratory data package. This laboratory is NELAC accredited under the
Texas Lab	oratory Acc	reditation Program for all the methods	, analytes, and matrices reported in this data package except as noted in
the Except	ion Report.	This data package has been reviewed	d by the laboratory and is complete and technically compliant with the
requiremen	nts of the m	ethods used, except where noted by the	he laboratory in the attached exception reports. By my signature below, I
affirm to th	e best of my	y knowledge, all problems/anomalies,	observed by the laboratory as having the potential to affect the quality of
the data, h	ave been id	entified by the laboratory in the Labor	atory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable:	This laboratory meets an exception u	under 30 TAC&25.6 and was last inspection by
[]		[X] TCEQ or [] on April 2	011. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports herei	n. The official signing the cover page of the report in which these data are
		used is responsible for releasing this	data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date

12/12/2012



Laborat	N1		CHECKLIST: REPORTABLE			046		
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
5		Quarterly Well Sampling, Parker	Laborator Budad North					
Project Na		County, Texas	Laboratory Project Number:	_	2088			
Reviewer #1		Anita Patel	Prep Batch Number(s):	GSS				IED 45
# R1	A ²	DESCRIPTION CHAIN-OF-CUSTODY (C-O-C):		YES	NO	INA	INK	ER#
N I	01		andard conditions of sample acceptability		ı .	ı	ı	
		upon receipt?	andard conditions of sample acceptability	X				
			anditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) ide		+^				
I\Z	- 01		referenced to the laboratory ID numbers?	Х	1	ı	ı	
		<u> </u>		_				<u> </u>
		·	eferenced to the corresponding QC data?	X				
R3	OI	Test reports	L. M.C. L. I. F C O	- V				
		Were samples prepared and analyze		X				<u> </u>
			all other raw values bracketed by calibration	Х				
		standards?	or oupon door?					
		Were calculations checked by a peer		X				
		Were all analyte identifications check		X				-
		Were all results for soil and sediment	samples reported on a dry weight basis?	X		V	-	<u> </u>
		Were % moisture (or solids) reported				X		
			latile analysis extracted with methanol per	-		_ ^		-
		SW846 Method 5035?	name analysis extracted with methanol per			Х		
		If required for the project, are TIC's re	ported?			Х		†
R4	0	Surrogate recovery data	portou.					
	_ <u> </u>	Were surrogates added prior to extract	ction?	Х		I	I	
			all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for bl	<u> </u>					
	<u> </u>	Were appropriate type(s) of blanks ar		Х				
		Were blanks analyzed at the appropri	•	X				
		Were method blanks taken through th						
		preparation and, if applicable, cleanu		X				
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td></td><td></td></mql?<>		Х				
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the ent	ire analytical procedure, including prep and					
		cleanup steps?		X				
		Were LCSs analyzed at required freq	uency?	Х				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
		Does the detectablility check sample	data document the laboratory's capability to	Х				4
		detect the COCs at the MDL used to	calculate the SDLs?	^				4
		Was the LCSD RPD within QC limits	?			Х		
R7	OI	Matrix spike (MS) and matrix spike						
		Were the project/method specified an		Х				
		Were MS/MSD analyzed at the appro		Х				
		Were MS (and MSD, if applicable) %		Х				
		Were the MS/MSD RPDs within labor	ratory QC limits?	Х				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicate	s analyzed for each matrix?	Х				
		Were analytical duplicates analyzed a		Х				
		Were RPDs or relative standard devia	ations within the laboratory QC limits?	Х				
R9	OI	Method quantitation limits (MQLs):						
			e included in the laboratory data package?	X				
			entration of the lowest non-zero calibration	Х				
		· · · · · · · · · · · · · · · · · · ·	uded in the laboratory data package?		Χ			2
R10	OI	Other problems/anomalies						
			ecial conditions noted in this LRC and ER?	Х				
			logy used to lower the SDL to minimize the	Х				
		1	nder the Texas Laboratory Accreditation					
			nd methods associated with this laboratory	X				3
	Ì	data package?		1	1	1	1	1



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na		Quarterly Well Sampling, Parker			2088			
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS2			78	
#1	A ²	DESCRIPTION	1 10p 2aton (1am201(0))	YES				FR#
S1	OI	Initial calibration (ICAL)		120		,		
	<u> </u>		response factors for each analyte within QC					
		limits?	response lasters for each analyte within Qo	X				
		Were percent RSDs or correlation co	efficient criteria met?	Х				
			mended in the method used for all analytes?	X				
			e lowest and highest standard used to		_			
		calculate the curve?	o tomoot and mgrioot otaliaala acca to	X				
		Are ICAL data available for all instrum	nents used?	X				
			verified using an appropriate second source					
		standard?	vernice using an appropriate second source	X				
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method		Х				
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each	·	X			М	
			concentration in the inorganic CCB <mdl?< td=""><td> ' </td><td></td><td>Х</td><td></td><td></td></mdl?<>	'		Х		
S3	0	Mass spectral tuning				Ť		
		Was the appropriate compound for th	e method used for tuning?	Х				
		Were ion abundance data within the		X				
S4	0	Internal standards (IS)	nomica required de imme.	<i>~</i>				
	_ <u> </u>	` '	nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)	iso maini ais mealea requirea qui illino.					
	<u> </u>		matograms, spectral data) reviewed by an					
		analyst?	mategrame, opeonal data/ reviewed by all	X				
		Were data associated with manual in	tegrations flagged on the raw data?	Х				
S6	0	Dual column confirmation	and the second state of the second se	~				
		Did dual column confirmation results	meet the method-required QC?			Х		
S7	0	Tentatively identified compounds (
			s spectra and TIC data subject to appropriate					
		checks?				X		
S8		Interference Check Sample (ICS) re	esults					
		Were percent recoveries within method				Х		
S9		-	kes, and method of standard additions					
		Were percent differences, recoveries,						
		specified in the method?	•			Χ		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support		Х				4
S11	OI	Proficiency test reports	·					
			ceptable on the applicable proficiency tests or	V				
		evaluation studies?		X				
S12	OI	Standards documentation						
		Are all standards used in the analyses	s NIST-traceable or obtained from other	,, I				
		appropriate source?		X				
S13	OI	Compound/analyte identification p	rocedures					
		Are the procedures for compound/ana		Х				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with		Х				
		Is documentation of the analyst's com		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
			the data documentated, verified, and	, I				
		validated, where applicable?		X				
S16	OI	Laboratory standard operating pro	cedures (SOPs)					
		Are laboratory SOPs current and on fi		Х				



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports											
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012								
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20885								
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VK578								
ER# ¹	Description	n										
1	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method blank. The SDL is defined in the report as the MDL.											
2	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.											
3			exas Laboratory Accreditation Program for the kage for analytes that are listed in the Texas F									
4		tory does not perform DCS analysis for evalues in the Texas TRRP PCL table	or Method RSKSOP-147/175. The component es.	s reported are not listed or								
-												

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: SW846 8260B

Method Blank Summary Job Number: TC20885

Job Number:

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample VK578-MB	File ID K13177.D	DF 1	Analyzed 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	107%	80-119%
460-00-4	4-Bromofluorobenzene	103%	72-126%



Method: SW846 8260B

Blank Spike Summary Job Number: TC20885

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample VK578-BS	File ID K13175.D	DF 1	Analyzed 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.5	94	68-119
100-41-4	Ethylbenzene	25	23.4	94	71-117
108-88-3	Toluene	25	23.0	92	73-119
1330-20-7	Xylene (total)	75	71.7	96	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	105%	80-119%
460-00-4	4-Bromofluorobenzene	101%	72-126%



^{* =} Outside of Control Limits.

6.3.1

Page 1 of 1

Method: SW846 8260B

σ

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20885

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20506-1MS	K13179.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1MSD	K13180.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1	K13178.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	TC20506-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	23.4	94	23.1	92	1	68-119/12
100-41-4	Ethylbenzene	ND	25	22.9	92	22.6	90	1	71-117/12
108-88-3	Toluene	ND	25	23.0	92	22.1	88	4	73-119/13
1330-20-7	Xylene (total)	ND	75	71.6	95	69.3	92	3	74-119/13

CAS No.	Surrogate Recoveries	MS	MSD	TC20506-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	105%	104%	68-124%
2037-26-5	Toluene-D8	107%	105%	106%	80-119%
460-00-4	4-Bromofluorobenzene	103%	104%	104%	72-126%



^{* =} Outside of Control Limits.



GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

Method Blank Summary Job Number: TC20885

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-MB	File ID SS005056.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method Blank Summary Job Number: TC20885

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS234-MB	File ID SS005099.D	DF 1	Analyzed 12/10/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS234

The QC reported here applies to the following samples: Method: RSKSOP-147/175

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l



Method: RSKSOP-147/175

Blank Spike Summary Job Number: TC20885

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample GSS233-BS	File ID SS005054.D	DF 1	Analyzed 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Blank Spike Summary Job Number: TC20885

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:**

	Sample GSS234-BS	File ID SS005096.D	DF 1	Analyzed 12/10/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS234
--	---------------------	------------------------------	-------------	--------------------------	----------	----------------------	-------------------	----------------------------

The QC reported here applies to the following samples: Method: RSKSOP-147/175

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	68-139



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary Job Number: TC20885

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:**

Sample TC20970-2MS ^a TC20970-2 ^a	File ID SS005067.D SS005066.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

TC20885-1

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

(a) Sample was not preserved to a pH < 2.



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Matrix Spike Summary Job Number: TC20885

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC21021-2MS TC21021-2	File ID SS005113.D SS005112.D	Analyzed 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	TC2102 ug/l	• .		MS %	Limits
74-82-8	Methane	1.49	21.5	24.3	106	68-139



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20885

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample	File ID	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20879-1DUP	SS005062.D	12/07/12	LT	n/a	n/a	GSS233
TC20879-1	SS005061.D	12/07/12	LT	n/a	n/a	GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

Duplicate Summary Job Number: TC20885

Account: PESTXST EarthCon Consultants

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC21021-1DUP TC21021-1	File ID SS005111.D SS005110.D	Analyzed 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

		TC21021-1					
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
74-82-8	Methane	0.88		0.86		2	53



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.	Dec 12, 2012 13:13 pn										
Job Number:	TC20887										
Account:	EarthCo	n Consultants									
Project:	Quarterly	y Well Sampling, Parker County, Texas									
Project Number:	3rd Quarter / WW15-Hur										
	Legend:	Hit									
Client Sample ID:		WW15-HUR-120212									
Lab Sample ID:		TC20887-1									
Date Sampled:		12/02/2012									
Matrix:		Ground Water									
GC/MS Volatiles (SW846 8260B)											
Benzene	mg/l	0.00034 U									
Toluene	mg/l	0.00033 U									
Ethylbenzene	mg/l	0.00032 U									
Xylene (total)	mg/l	0.00087 U									
GC Volatiles (RSKSOP-147/175)											
Methane	mg/l	5.32									
Ethene	mg/l	0.00050 U									
Ethane	mg/l	0.231									
Propane	mg/l	0.00075 U									
Isobutane	mg/l	0.00075 U									
Butane	mg/l	0.00075 U									



12/12/12



Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW15-Hur

Accutest Job Number: TC20887

Sampling Date: 12/02/12

Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Robriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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7.1: Method Blank Summary	
7.2: Blank Spike Summary	24
7.3: Matrix Spike Summary	25
7.4: Duplicate Summary	



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Sample Summary

EarthCon Consultants

Job No: TC20887

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW15-Hur

Sample	Collected			Matr		Client					
Number	Date	Time By	Received	Code	Туре	Sample ID					
TC20887-1	12/02/12	11:28	12/04/12	AQ	Ground Water	WW15-HUR-120212					





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20887

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 8:56:23 AM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20887. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VZ3820

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20772-2MS, TC20772-2MSD were used as the QC samples indicated.

Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS234

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC21021-1DUP, TC21021-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Ethane is outside control limits. Probable cause due to matrix interference.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



Summary of Hits Job Number: TC20887

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12**Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID Result/ Qual		MQL	SDL	Units	Method				
TC20887-1	WW15-HUR-1202	212								
Methane Ethane		5.32 0.231	0.025 0.0010	0.015 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175				



Sample Results	
Report of Analysis	



4

Report of Analysis

Client Sample ID: WW15-HUR-120212

 Lab Sample ID:
 TC20887-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z030548.D	1	12/06/12	EM	n/a	n/a	VZ3820
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	94% 83% 90% 94%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: WW15-HUR-120212

 Lab Sample ID:
 TC20887-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005107.D	1	12/10/12	LT	n/a	n/a	GSS234
Run #2	SS005109.D	50	12/10/12	LT	n/a	n/a	GSS234

RSK147 Special List

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	5.32 a	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.231	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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	Client / Reporting Information			Project	Informa	tion	90 90										Req	ues	ted	Anal	yses	Matrix Codes					
С	Company Name	Project Name:													- 1.										İ		
l	arthCon Consultants, Inc.	Third Quarter	ly Well Samplin	o. Parker C	ounty.	Texas										-175						- 1		-	DW - Drinking Water		
Sti	treet Address	Street		-	4850E				H			100000		X18332	1										GW - Ground Water		
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С	City State Zip	City		State	Company	y Name									1									ļ	SO - Soil SL- Sludge		
Si	Stafford TX 77477																							i	SED-Sediment		
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P	Phone # Fax #	Client Purchase 0	Order#		City					otate			Zip		1	175									SOL - Other Solid WP - Wipe		
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	Accutest Sample # Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	ᅙ	ZANa	HNOS	H2SO NONE	DI Wa	ISP GS	NaHSO	THE	BTEX 8260B	Propane by RSK-		1						- 1	LAB USE ONLY		
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TC20887: Chain of Custody Page 1 of 4





### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20887	Client:	EARTHCON CONSULTANT	s	Project: 3RD QTR WEL	L SAMPLIN	IG,PARKE	R COUNTY,T
Date / Time Received: 12/4/2012		Delivery Method:	Client A	irbill #'s:			
No. Coolers: 1 Therm ID:	IR6		Те	mp Adjustment Factor:	0.2		
Cooler Temps (Initial/Adjusted): #1: (2.2/	2.4)						
Cooler Security Y or N		Y or N	Sample Integrity -	Documentation	<u>Y</u>	or N	
1. Custody Seals Present:	3. COC Pr		Sample labels pre	esent on bottles:	<b>~</b>		
2. Custody Seals Intact: ✓ 4.	Smpl Dates	s/Time OK 🔽 🗌	2. Container labeling	g complete:	$\checkmark$		
Cooler Temperature Y or N	_		3. Sample container	label / COC agree:		<b>✓</b>	
1. Temp criteria achieved:	]		Sample Integrity	- Condition	<u>Y</u>	or N	
Cooler temp verification:			Sample recvd with		<b>✓</b>		
3. Cooler media:			2. All containers acc	ounted for:	✓		
Quality Control Preservation Y or N	I N/A	WTB STB	3. Condition of samp	ole:		ntact	
1. Trip Blank present / cooler:			Sample Integrity	- Instructions	Υ	or N	N/A
2. Trip Blank listed on COC:			Analysis request	ed is clear:	<u> </u>		<u></u>
3. Samples preserved properly: ✓	]		2. Bottles received	for unspecified tests		<b>✓</b>	
4. VOCs headspace free: ✓			3. Sufficient volume	recvd for analysis:	✓		
			4. Compositing inst	ructions clear:			<b>~</b>
			5. Filtering instruction	ons clear:			<b>V</b>
Comments -Received trip blank not listed on C - Two of six vial labels list "WW12-		12" as sample ID, time/date ma	tch COC.				

TC20887: Chain of Custody Page 2 of 4

Page 1 of 3







#### **Problem Resolution**

Accutest Job Number: TC20887

**CSR**: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

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TC20887: Chain of Custody Page 3 of 4







#### Sample Receipt Log

 Job #:
 TC20887
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20887-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20887-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20887-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20887-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20887-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20887-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20887: Chain of Custody

Page 4 of 4



## Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC20887 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

÷	IX I	riela chain-oi-custody documenta	ation,
	R2	Sample identification cross-refere	nce;
	R3	Test reports (analytical data sheet	ts) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including	;:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for bl	lank samples;
	R6	Test reports/summary forms for la	boratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix spik	ce/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if	applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9	List of method quantitation limits (	MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
The Exce	ption Report	t for each "No" or "Not Reviewed (N	R)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELAC ac	creditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release of	this laboratory data package. This laboratory is NELAC accredited under the
			ods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report.	This data package has been review	wed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where noted b	by the laboratory in the attached exception reports. By my signature below, I
affirm to the	ne best of m	y knowledge, all problems/anomalie	es, observed by the laboratory as having the potential to affect the quality of
the data, I	nave been id	dentified by the laboratory in the Lal	boratory Review Checklist, and no information or data have been knowingly
withheld.		•	
	applicable	: This laboratory meets an exception	n under 30 TAC&25.6 and was last inspection by
[]		[X ] TCEQ or [ ] on Apr	il 2011. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports he	erein. The official signing the cover page of the report in which these data are
		used is responsible for releasing t	this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά		
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12/	12/2	012	
		Quarterly Well Sampling, Parker				
Project Na	me:	County, Texas Laboratory Project Number:	TC	2088	7	
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS	234,	VZ38	20
# ¹	A ²	DESCRIPTION	YES	NO	NA ³	NR⁴ ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):				
		Did samples meet the laboratory's standard conditions of sample acceptability	l x			
		upon receipt?				
		Were all departures from standard conditions described in an exception report?	X			
R2	OI	Sample and quality control (QC) identification				
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X			
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X			
R3	OI	Test reports				
		Were samples prepared and analyzed within holding times?	X			
		Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>X</td><td></td><td></td><td></td></mql,>	X			
		standards?	<del>  , , </del>			
		Were calculations checked by a peer or supervisor?	X			
		Were all analyte identifications checked by a peer or supervisor?  Were sample detection limits reported for all analytes not detected?	X			
		Were all results for soil and sediment samples reported on a dry weight basis?	+^		Х	
		Were % moisture (or solids) reported for all soil and sediment samples?	+-		X	
		Were bulk soils/solids samples for volatile analysis extracted with methanol per	+-			
		SW846 Method 5035?			Х	
		If required for the project, are TIC's reported?	1		Х	
R4 O		Surrogate recovery data				
		Were surrogates added prior to extraction?	Х			
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X			
R5	OI	Test reports/summary forms for blank samples				
		Were appropriate type(s) of blanks analyzed?	X			
		Were blanks analyzed at the appropriate frequency?  Were method blanks taken through the entire analytical process, including	X			
		preparation and, if applicable, cleanup procedures?	Х			
		Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td></mql?<>	X			
R6	OI	Laboratory control samples (LCS):				
		Were all COCs included in the LCS?	Х			
		Was each LCS taken through the entire analytical procedure, including prep and	X			
		cleanup steps?				
		Were LCSs analyzed at required frequency?	Х			
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Х			
		Does the detectability check sample data document the laboratory's capability to	l x			5
		detect the COCs at the MDL used to calculate the SDLs?	+			
R7	OI	Was the LCSD RPD within QC limits?			Χ	
K/	- U	Matrix spike (MS) and matrix spike duplicate (MSD) data  Were the project/method specified analytes included in the MS and MSD?	X			
		Were MS/MSD analyzed at the appropriate frequency?	X			
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?	<del>  ^`</del>	Х		4
		Were the MS/MSD RPDs within laboratory QC limits?	Х	Ė		
R8	OI	Analytical duplicate data				
		Were appropriate analytical duplicates analyzed for each matrix?	Х			
		Were analytical duplicates analyzed at the appropriate frequency?	Х			
		Were RPDs or relative standard deviations within the laboratory QC limits?	Х			
R9	OI	Method quantitation limits (MQLs):	1			
		Are the MQLs for each method analyte included in the laboratory data package?	X	$\vdash$		
		Do the MQLs correspond to the concentration of the lowest non-zero calibration	X	-		-
R10	OI	Are unadjusted MQLs and DCSs included in the laboratory data package?  Other problems/anomalies		Х		2
10	0	Are all known problems/anomalies/special conditions noted in this LRC and ER?	X			
		Was applicable and available technology used to lower the SDL to minimize the	^			
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation	Ť			
		Program for the analytes, matrices, and methods associated with this laboratory	X			3
		data package?				
	•					



Laboratory Name:		Accutest Gulf Coast	LRC Date:	12/12/2012				
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2088	37		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS2	234,	VZ38	20	
#1	A ²	DESCRIPTION		YES	NO	NA ³	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?		^				
		Were percent RSDs or correlation co	efficient criteria met?	Х				
		Was the number of standards recom	mended in the method used for all analytes?	Х				
		Were all points generated between the	ne lowest and highest standard used to	х				
		calculate the curve?						
		Are ICAL data available for all instrum	nents used?	Х				
		Has the initial calibration curve been	verified using an appropriate second source	x				
	standard?			_^_				
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the metho		Х				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each		Х				
			e concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Х</td><td></td><td></td></mdl?<>			Х		
S3	0	mass speed at the same						
		Was the appropriate compound for the method used for tuning?		Х				
		Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)						
		Were IS area counts and retention times within the method-required QC limits?		Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
	Were the raw data (for example, chromatograms, spectral data) reviewed by an		l x l					
		analyst?						
		Were data associated with manual integrations flagged on the raw data?		Х	_			
S6	0	Dual column confirmation				L 1/		
		Did dual column confirmation results meet the method-required QC?				Х		
S7	0	Tentatively identified compounds	(TICs): ss spectra and TIC data subject to appropriate					
		checks?	ss spectra and TIC data subject to appropriate			Х		
S8	<u> </u>	Interference Check Sample (ICS) r	eculte		-			
36	'	Were percent recoveries within meth				Х		
S9	<u> </u>		kes, and method of standard additions					
39	<u> </u>		, and the linearity within the QC limits					
		specified in the method?	, and the inicality within the QO ininto			Х		
S10	OI	Method detection limit (MDL) stud	ios					
<del>- 0.0</del>	- 01	Was a MDL study performed for each		Х				
		Is the MDL either adjusted or suppor		X				5
S11	OI	Proficiency test reports	tou by the unaryone of Deec.	^				
	·		ceptable on the applicable proficiency tests or					
		evaluation studies?		Х				
S12	OI	Standards documentation						
		Are all standards used in the analyse	es NIST-traceable or obtained from other					
		appropriate source?		X				
S13	OI	7,7 7						
		Are the procedures for compound/an		Х				
S14	OI	Demonstration of analyst competency (DOC)						
		Was DOC conducted consistent with		Х				
		Is documentation of the analyst's con	<u> </u>	Х				
S15	OI	Verification/validation documentation	tion for methods (NELAC Chapter 5)					
			the data documentated, verified, and	\ \ \ \ \				
		validated, where applicable?		X		1		
S16	OI	Laboratory standard operating pro	ocedures (SOPs)					
		Are laboratory SOPs current and on		Х				



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20887						
Reviewer	ver Name: Anita Patel		Prep Batch Number(s):	GSS234, VZ3820						
ER# ¹	Descripti	on		•						
1	blank. The	ing purposes, the MQL is defined in the e SDL is defined in the report as the MI	DL. ,	·						
2	included i	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.								
3	methods a	atory is NELAC-accredited under the T associated with this laboratory data pac	kage for analytes that are listed in the							
4	All anoma	lies are discussed in the case narrative	9.							
5		atory does not perform DCS analysis for ve values in the Texas TRRP PCL table		components reported are not listed of						
	1									

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





### GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20887

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VZ3820-MB	<b>File ID</b> Z030534.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	<b>By</b> EM	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VZ3820

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	95% 86% 88%	72-122% 68-124% 80-119%
460-00-4	4-Bromofluorobenzene	93%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20887

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VZ3820-BS	<b>File ID</b> Z030532.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VZ3820

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	20.7	83	68-119
100-41-4	Ethylbenzene	25	20.6	82	71-117
108-88-3	Toluene	25	20.8	83	73-119
1330-20-7	Xylene (total)	75	64.2	86	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
17060-07-0	Dibromofluoromethane	92%	72-122%
	1,2-Dichloroethane-D4	84%	68-124%
	Toluene-D8	91%	80-119%
	4-Bromofluorobenzene	91%	72-126%



^{* =} Outside of Control Limits.

**Method:** SW846 8260B

### Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20887

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20772-2MS	Z030536.D	1	12/06/12	EM	n/a	n/a	VZ3820
TC20772-2MSD	Z030537.D	1	12/06/12	EM	n/a	n/a	VZ3820
TC20772-2	Z030535.D	1	12/06/12	EM	n/a	n/a	VZ3820

The QC reported here applies to the following samples:

CAS No.	Compound	TC20772-2 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	21.6	86	20.6	82	5	68-119/12
100-41-4	Ethylbenzene	ND	25	21.4	86	20.9	84	2	71-117/12
108-88-3	Toluene	ND	25	20.5	82	20.5	82	0	73-119/13
1330-20-7	Xylene (total)	ND	75	68.6	91	64.8	86	6	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20772-2	Limits
1868-53-7	Dibromofluoromethane	94%	93%	99%	72-122%
17060-07-0	1,2-Dichloroethane-D4	83%	84%	87%	68-124%
2037-26-5	Toluene-D8	86%	89%	89%	80-119%
460-00-4	4-Bromofluorobenzene	89%	91%	94%	72-126%



^{* =} Outside of Control Limits.



### GC Volatiles

### QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20887

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-MB	File ID SS005099.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20887

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 12/10/12	By	Prep Date	Prep Batch	Analytical Batch
GSS234-BS	SS005096. D	1		LT	n/a	n/a	GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	68-139
74-85-1	Ethene	57.4	43.4	76	52-145
74-84-0	Ethane	43.3	49.3	114	68-131
74-98-6	Propane	60.6	59.3	98	69-131
75-28-5	Isobutane	72.5	69.9	96	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# Matrix Spike Summary Job Number: TC20887

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-2MS TC21021-2	File ID SS005113.D SS005112.D	<b>Analyzed</b> 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	TC21021-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	1.49	21.5	24.3	106	68-139
74-85-1	Ethene	ND	57.4	55.4	97	52-145
74-84-0	Ethane	ND	43.3	64.1	148*	68-131
74-98-6	Propane	ND	60.6	75.7	125	69-131
75-28-5	Isobutane	ND	72.5	87.2	120	72-131
106-97-8	Butane	ND	76.6	93.9	123	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20887

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-1DUP	File ID SS005111.D		<b>Analyzed</b> 12/10/12	By LT	Prep Date	Prep Batch	Analytical Batch GSS234
TC21021-1	SS005110.D	1	12/10/12	LT	n/a	n/a	GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	TC21021-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	0.88	0.86	2	53
74-85-1	Ethene	ND	ND	nc	27
74-84-0	Ethane	ND	ND	nc	43
74-98-6	Propane	ND	ND	nc	21
75-28-5	Isobutane	ND	ND	nc	35
106-97-8	Butane	ND	ND	nc	33



^{* =} Outside of Control Limits.

	Dec 12, 2012 15:05 pm			
TC20883	TC20883			
EarthCon C	EarthCon Consultants			
Quarterly Well Sampling, Parker County, Te				
3rd Quarter / WW14A-Hur				
Legend:	Hit			
	WW14A-HUR-			
	120212			
	TC20883-1			
	12/02/2012			
	Ground Water			
mg/l	0.00034 U			
mg/l	0.00033 U			
mg/l	0.00032 U			
mg/l	0.00087 U			
mg/l	0.699			
mg/l	0.00050 U			
mg/l	0.0705			
mg/l	0.00075 U			
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12/12/12



### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW14A-Hur

Accutest Job Number: TC20883

Sampling Date: 12/02/12

### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 30



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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## **Sample Summary**

EarthCon Consultants

Job No: TC20883

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW14A-Hur

Sample	Collected			Matr	ix	Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC20883-1	12/02/12	10:47	12/04/12	AQ	Ground Water	WW14A-HUR-120212





### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20883

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 1:50:13 PM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20883. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK578

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20506-1MS, TC20506-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- TC20970-2MS: Sample was not preserved to a pH < 2.

Matrix AQ Batch ID: GSS234

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC21021-1DUP, TC21021-2MS were used as the QC samples indicated.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

**Summary of Hits Job Number:** TC20883

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12**Project:** 

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20883-1	WW14A-HUR-120	0212				
Methane Ethane		0.699 0.0705	0.0050 0.0010	0.0030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175



Sample Results	
Report of Analysis	



## 4

## **Report of Analysis**

Client Sample ID: WW14A-HUR-120212

 Lab Sample ID:
 TC20883-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	Analytical Batch
Run #1	K13197.D	1	12/06/12	EM	n/a	n/a	VK578
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	111% 108% 105% 105%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



### 4

## **Report of Analysis**

Client Sample ID: WW14A-HUR-120212

 Lab Sample ID:
 TC20883-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005076.D	1	12/07/12	LT	n/a	n/a	GSS233
Run #2	SS005100.D	10	12/10/12	LT	n/a	n/a	GSS234

### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.699 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0705	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



## CHAIN OF CUSTODY

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Company Name		Third Overtor	ly Well Sampli	ng Parker C	ounty T	exas										Ethene, Isobutane, Methane,								- 1		DW - Drinking Water
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City State	Zip	City		State	Company	Name										tan										SO - Soil SL- Sludge
Stafford TX	77477															pp										SED-Sediment OI - Oil
Project Contact	E-mail	Project #			Street Ad	dress										<u>s</u>										LIQ - Other Liquid
Gabriela Floreslovo					City				-	State			Zip			e e										AIR - Air SOL - Other Solid
Phone #	Fax#	Client Purchase 0	Order#		City											温さ										WP - Wipe
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TC20883: Chain of Custody Page 1 of 4







## **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC2	0883	Client:	EARTHCO	N CON	SULTANT	S	Project:	3RD QTR WEL	L SAMPLI	NG,PARK	ER COUNTY,T
Date / Time Received: 12/4	/2012		Delivery M	ethod:		Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6					Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adjuste	ed): #1: (2.2	(2.4)									
Cooler Security Y	or N			Υo	r N_	Sample Integr	ity - Documer	ntation_	Υ_	or N	
Custody Seals Present:	_	3. COC P		<b>✓</b>		1. Sample labels	s present on bo	ttles:	<b>✓</b>		
2. Custody Seals Intact: ✓	<u> </u>	Smpl Date	s/Time OK	<b>✓</b>		2. Container lab	eling complete:		<b>✓</b>		
Cooler Temperature	Y or N	_				3. Sample conta	ainer label / CO	C agree:	<b>✓</b>		
1. Temp criteria achieved:	<b>v</b>	]				Sample Integr	rity - Conditio	on	Υ	or N	
Cooler temp verification:	Infared G	un				Sample recvo	d within HT:	_	<b>✓</b>		
Cooler media:	Ice (bag	1)				2. All containers	s accounted for:		<b>✓</b>		
Quality Control Preservation	n Y or I	N/A	<u>. 1</u>	WTB	STB	3. Condition of s	sample:			Intact	
1. Trip Blank present / cooler:	<b>V</b>			<b>✓</b>		Sample Integr	rity - Instructi	ons	Υ	or N	N/A
2. Trip Blank listed on COC:		] 🗆				Analysis requ			<u> </u>		
3. Samples preserved properly:	<b>v</b>	]					ived for unspeci	fied tests		✓	
4. VOCs headspace free:	<b>v</b>					3. Sufficient vol	lume recvd for a	analysis:	<b>✓</b>		
						4. Compositing	instructions cle	ar:			<b>✓</b>
						5. Filtering instr	ructions clear:				<b>~</b>
Comments -Received trip blank	not listed on (	COC.									

TC20883: Chain of Custody Page 2 of 4





### **Problem Resolution**

Accutest Job Number: TC20883

**CSR**: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

___

TC20883: Chain of Custody Page 3 of 4







## Sample Receipt Log

 Job #:
 TC20883
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20883-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20883-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20883-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20883-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20883-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20883-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20883: Chain of Custody

Page 4 of 4



### Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20883 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody docume	entation;
	R2	Sample identification cross-ref	ference;
Ģ	R3	Test reports (analytical data sh	neets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data include	ding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	or blank samples;
	R6	Test reports/summary forms for	or laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix:	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate	e (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ģ	R9		its (MQLs) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			d (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELAC	Caccreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	e of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	ooratory Acc	creditation Program for all the me	ethods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report	. This data package has been re	eviewed by the laboratory and is complete and technically compliant with the
requireme	ents of the m	nethods used, except where note	ed by the laboratory in the attached exception reports. By my signature below, I
affirm to the	ne best of m	ny knowledge, all problems/anon	nalies, observed by the laboratory as having the potential to affect the quality of
the data, I	nave been i	dentified by the laboratory in the	Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable	•	ption under 30 TAC&25.6 and was last inspection by
[]			April 2011. Any findings affecting the data in this laboratory data package are
			s herein. The official signing the cover page of the report in which these data are
		used is responsible for releasing	ng this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	Name:	Accutest Gulf Coast LRC Date:	12	/12/2	012		
		Quarterly Well Sampling, Parker					
Project Na		County, Texas Laboratory Project Number:	_	2088			
Reviewer	Name:	Anita Patel Prep Batch Number(s):			VK5		5
#1	A ²	DESCRIPTION	YES	NO	NA°	NR.	ER# ⁵
R1	OI	CHAIN-OF-CUSTODY (C-O-C):					
		Did samples meet the laboratory's standard conditions of sample acceptability	Х				i
		upon receipt?  Were all departures from standard conditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) identification	<del>  ^</del>				
- 1\2	<u> </u>	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	^				
	01		<del>  ^</del>				
R3	OI	Test reports  Were samples prepared and analyzed within holding times?	V				
		Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>X</td><td></td><td></td><td></td><td></td></mql,>	X				
		standards?	X				1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X	$\vdash$			
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	<del>  ^</del>	$\vdash$	Х		
		Were % moisture (or solids) reported for all soil and sediment samples?	t		X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per					
		SW846 Method 5035?			Х		
		If required for the project, are TIC's reported?			Х		
R4	0	Surrogate recovery data					
		Were surrogates added prior to extraction?	Х				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including	Х				i
		preparation and, if applicable, cleanup procedures?  Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td><td></td></mql?<>	X				
R6	OI	Laboratory control samples (LCS):	<u> </u>				
	<u> </u>	Were all COCs included in the LCS?	Х	П			
		Was each LCS taken through the entire analytical procedure, including prep and					
		cleanup steps?	X				1
		Were LCSs analyzed at required frequency?	Х				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Х				
		Does the detectablility check sample data document the laboratory's capability to	Х				4
		detect the COCs at the MDL used to calculate the SDLs?	^				*
		Was the LCSD RPD within QC limits?		L	Х		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X	<u> </u>			
		Were MS/MSD analyzed at the appropriate frequency?	X	_			
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits? Were the MS/MSD RPDs within laboratory QC limits?	X	$\vdash$	_		
R8	OI	,					
- 10	UI UI	Analytical duplicate data  Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed for each matrix?  Were analytical duplicates analyzed at the appropriate frequency?	X	_			
		Were RPDs or relative standard deviations within the laboratory QC limits?	l â				
R9	OI	Method quantitation limits (MQLs):	+^	_			
11.3	ļ ,	Are the MQLs for each method analyte included in the laboratory data package?	Х				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration	X	$\vdash$			
		Are unadjusted MQLs and DCSs included in the laboratory data package?	<del>  ^</del>	Х			2
R10	OI	Other problems/anomalies					_
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	Х				
		Was applicable and available technology used to lower the SDL to minimize the	Х				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation					
		Program for the analytes, matrices, and methods associated with this laboratory	X				3
	<u></u>	data package?	L	L			
· · · · · · · · · · · · · · · · · · ·				_	_	_	_



Laboratory Name:		Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na		Quarterly Well Sampling, Parker		TC20883				
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	_		VK57	78	
#1	A ²	DESCRIPTION	1. 10p 2aton 11am201(0).				NR⁴ I	FR #
S1	OI	Initial calibration (ICAL)		120	110	,		
	<u> </u>		e response factors for each analyte within QC		l		П	
		limits?	response factors for each analyte within Qo	X				
		Were percent RSDs or correlation co	efficient criteria met?	X				
			mended in the method used for all analytes?	T X				
			Were all points generated between the lowest and highest standard used to					
		calculate the curve?	io ionost and ingriost standard dood to	X				
		Are ICAL data available for all instrum	nents used?	X				
			verified using an appropriate second source					
		standard?	vermed daming an appropriate accord addrec	X				
S2	OI		erification (ICCV AND CCV) and continuing					
<del>- 02</del>	- 0.	Was the CCV analyzed at the method		Х	_		П	
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each	·	X			+	
			e concentration in the inorganic CCB <mdl?< td=""><td>+^</td><td></td><td>Х</td><td>+</td><td></td></mdl?<>	+^		Х	+	
S3	0	Mass spectral tuning	concentration in the morganic CCB <mdl?< td=""><td></td><td></td><td></td><td></td><td></td></mdl?<>					
- 33	0		no mothed used for tuning?	V				
		Was the appropriate compound for the Were ion abundance data within the		X		-	$\vdash$	
S4	0	Internal standards (IS)	memou-required QC inflits?	<del>  ^</del>				
- 54	0	` '		V	1			
	OI		nes within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)						
		` '	matograms, spectral data) reviewed by an	X				
		analyst?		ļ.,				
	Were data associated with manual integrations flagged on the raw data?		X					
S6	0	Dual column confirmation					_	
		Did dual column confirmation results	<u>'</u>			Х		
S7	0	Tentatively identified compounds						
			s spectra and TIC data subject to appropriate			Х		
		checks?						
S8	ı	Interference Check Sample (ICS) r					_	
		Were percent recoveries within method				Х		
S9	ı		kes, and method of standard additions					
		1	, and the linearity within the QC limits			Х		
		specified in the method?					Щ	
S10	OI	Method detection limit (MDL) studi						
		Was a MDL study performed for each		X				
	L	Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х			ш	4
S11	OI	Proficiency test reports					ļ	
			ceptable on the applicable proficiency tests or	Ιx		1		
		evaluation studies?		<u> </u>				
S12	OI	Standards documentation						
		•	s NIST-traceable or obtained from other	Ιx		1		
		appropriate source?		<u> </u>			$\sqcup \bot$	
S13	OI	Compound/analyte identification p						
		Are the procedures for compound/and		X				
S14	OI	Demonstration of analyst compete						
		Was DOC conducted consistent with		X				
		Is documentation of the analyst's com		Х				
S15	OI		ion for methods (NELAC Chapter 5)					
		Are all the methods used to generate	the data documentated, verified, and	Х				
		validated, where applicable?	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s				$\Box$	
S16	OI		Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on f	ile for each method performed?	Х				



	LABOF	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports				
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012				
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20883				
Reviewer	Name:	GSS233, VK578						
ER# ¹	Description	on						
1	blank. The	SDL is defined in the report as the MI		'				
2	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.							
3			exas Laboratory Accreditation Program for the kage for analytes that are listed in the Texas F					
4		tory does not perform DCS analysis for e values in the Texas TRRP PCL table	or Method RSKSOP-147/175. The component es.	s reported are not listed or				

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



## GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20883

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 12/06/12	By	Prep Date	Prep Batch	Analytical Batch
VK578-MB	K13177.D	1		EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
1868-53-7	Dibromofluoromethane	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	107%	80-119%
460-00-4	4-Bromofluorobenzene	103%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20883

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
VK578-BS	K13175.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.5	94	68-119
100-41-4	Ethylbenzene	25	23.4	94	71-117
108-88-3	Toluene	25	23.0	92	73-119
1330-20-7	Xylene (total)	75	71.7	96	74-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	105%	80-119%
460-00-4	4-Bromofluorobenzene	101%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

### σ

## Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20883

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20506-1MS	K13179.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1MSD	K13180.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1	K13178.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	TC20506-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	23.4	94	23.1	92	1	68-119/12
100-41-4	Ethylbenzene	ND	25	22.9	92	22.6	90	1	71-117/12
108-88-3	Toluene	ND	25	23.0	92	22.1	88	4	73-119/13
1330-20-7	Xylene (total)	ND	75	71.6	95	69.3	92	3	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20506-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	105%	104%	68-124%
2037-26-5	Toluene-D8	107%	105%	106%	80-119%
460-00-4	4-Bromofluorobenzene	103%	104%	104%	72-126%



^{* =} Outside of Control Limits.



## GC Volatiles

## QC Data Summaries

## Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20883

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS233-MB	File ID SS005056.D	<b>DF</b> 1	<b>Analyzed</b> 12/07/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



# Method Blank Summary Job Number: TC20883

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-MB	File ID SS005099.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS234

The QC reported here applies to the following samples: Method: RSKSOP-147/175

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20883

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS233-BS	<b>File ID</b> SS005054.D	<b>DF</b> 1	<b>Analyzed</b> 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

# Blank Spike Summary Job Number: TC20883

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-BS	File ID SS005096.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS234

The QC reported here applies to the following samples: Method: RSKSOP-147/175

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	68-139



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# Matrix Spike Summary Job Number: TC20883

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample TC20970-2MS ^a TC20970-2 ^a	File ID SS005067.D SS005066.D	Analyzed 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

TC20883-1

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

(a) Sample was not preserved to a pH < 2.



^{* =} Outside of Control Limits.

# Matrix Spike Summary Job Number: TC20883

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	<b>File ID</b>	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC21021-2MS	SS005113.D	12/10/12	LT	n/a	n/a	GSS234
TC21021-2	SS005112.D	12/10/12	LT	n/a	n/a	GSS234

The QC reported here applies to the following samples: Method: RSKSOP-147/175

CAS No.	Compound	TC21021-2 ug/l (	• .		MS %	Limits
74-82-8	Methane	1.49	21.5	24.3	106	68-139



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20883

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

	Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D		<b>Analyzed</b> 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233
--	-------------------------------------	-------------------------------------	--	-----------------------------------	----------------	-------------------------	--------------------------	--------------------------------------

The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20883

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

	Sample TC21021-1DUP TC21021-1	File ID SS005111.D SS005110.D		<b>Analyzed</b> 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234
--	-------------------------------------	-------------------------------------	--	-----------------------------------	----------------	-------------------------	--------------------------	--------------------------------------

The QC reported here applies to the following samples:

		TC2102	21-1	DUP			
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
74-82-8	Methane	0.88		0.86		2	53



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:12 pm
Job Number:	TC20886	
Account:	EarthCor	n Consultants
Project:	Quarterly	Well Sampling, Parker County, Texas
Project Number:	3rd Quar	ter / WW13-Str
	Legend:	Hit
Client Sample ID:		WW13-STR-120212
Lab Sample ID:		TC20886-1
Date Sampled:		12/02/2012
Matrix:		Ground Water
GC/MS Volatiles (SW846 8260B)		
Benzene	mg/l	0.00034 U
Toluene	mg/l	0.00033 U
Ethylbenzene	mg/l	0.00032 U
Xylene (total)	mg/l	0.00087 U
GC Volatiles (RSKSOP-147/175)		
Methane	mg/l	5.64
Ethene	mg/l	0.00050 U
Ethane	mg/l	0.779
Propane	mg/l	0.00075 U
Isobutane	mg/l	0.00075 U
Butane	mg/l	0.00075 U



12/12/12



## Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW13-Str

Accutest Job Number: TC20886

Sampling Date: 12/02/12

## Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

1 of 26
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TC20886 LABORATORIE

## **Sections:**

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## **Sample Summary**

EarthCon Consultants

Job No:

TC20886

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW13-Str

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC20886-1	12/02/12	13:00	12/04/12	AQ	Ground Water	WW13-STR-120212





### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20886

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 9:00:30 AM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20886. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK578

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20506-1MS, TC20506-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS234

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC21021-1DUP, TC21021-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Ethane is outside control limits. Probable cause due to matrix interference.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20886

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12 **Project:** 

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20886-1	WW13-STR-1202	12				
Methane Ethane		5.64 0.779	0.025 0.050	0.015 0.025	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175



Sample Results		
Report of Analysis		



## 4

## **Report of Analysis**

Client Sample ID: WW13-STR-120212

 Lab Sample ID:
 TC20886-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
Run #1	K13199.D	1	12/06/12	EM	n/a	n/a	VK578
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 107% 106% 102%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



### 4

# **Report of Analysis**

Client Sample ID: WW13-STR-120212

 Lab Sample ID:
 TC20886-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	SS005102.D	1	12/10/12	LT	n/a	n/a	GSS234
Run #2	SS005104.D	50	12/10/12	LT	n/a	n/a	GSS234

### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	5.64 a	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.779 a	0.050	0.025	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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Company Name	Project Name:														.									- 1	
EarthCon Consultants, Inc.	Third Quarter	v Well Sampli	ng. Parker C	ounty, 1	Гехаs										Ethene, Isobutane, Methane,	1									DW - Drinking Water
Street Address	Street			\$500 Miles											Jet		.						1	1	GW - Ground Water WW - Water
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TC20886: Chain of Custody Page 1 of 4







### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20	0886	Client:	EARTHCO	N CON	SULTANT	S	Project:	3RD QTR WEL	L SAMPLI	NG,PARK	ER COUNTY,T
Date / Time Received: 12/4/	2012		Delivery M	ethod:		Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6					Temp Adjus	ment Factor:	0.2		
Cooler Temps (Initial/Adjuste	ed): #1: (2.2	/2.4)									
Cooler Security Y	or N			Υo	r N_	Sample Integr	ity - Documer	ntation_	ΥΥ	or N	
Custody Seals Present:  ✓		3. COC P		✓		Sample labels	s present on bo	ttles:	<b>~</b>		
2. Custody Seals Intact:	☐ 4.	Smpl Date	s/Time OK	✓		2. Container lab	eling complete:		<b>✓</b>		
Cooler Temperature	Y or N	<u>L</u>				3. Sample conta	ainer label / CO	C agree:	<b>✓</b>		
1. Temp criteria achieved:	<b>V</b>					Sample Integr	rity - Conditio	n	Υ	or N	
Cooler temp verification:	Infared G	un				Sample recvo	d within HT:		<b>✓</b>		
Cooler media:	Ice (baç	3)				2. All containers	s accounted for:		<b>~</b>		
<b>Quality Control Preservation</b>	Y or I	N N/A	<u>. 1</u>	WTB	STB	3. Condition of s	sample:			Intact	
1. Trip Blank present / cooler:	<b>V</b>			<b>✓</b>		Sample Integr	rity - Instructi	ons	Υ	or N	N/A
2. Trip Blank listed on COC:							uested is clear:		<u> </u>		
3. Samples preserved properly:	✓ [						ived for unspeci	fied tests		✓	
4. VOCs headspace free:	<b>v</b>					3. Sufficient vol	lume recvd for a	nalysis:	<b>✓</b>		
						4. Compositing	instructions cle	ar:			<b>✓</b>
						5. Filtering instr	ructions clear:				<b>~</b>
Comments -Received trip blank	not listed on (	COC.									

TC20886: Chain of Custody

Page 1 of 3

Page 2 of 4







### **Problem Resolution**

Accutest Job Number: TC20886

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

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TC20886: Chain of Custody
Page 3 of 4





### Sample Receipt Log

 Job #:
 TC20886
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20886-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20886-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20886-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20886-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20886-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20886-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20886: Chain of Custody

Page 4 of 4



# Appendix A Laboratory Data Package Cover Page TC20886 This data package consists of

This signature page, the laboratory review checklist, and the following reportable data:

[]

QA Manager Name (Printed)

Richard Rodriguez

is true.

Signature

	R1	Field chain-of-custody documentation;	3 4
·	R2	Sample identification cross-reference;	
	R3	Test reports (analytical data sheets) fo	r each environmental sample that includes:
		a) I	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b) 0	dilution factors,
		c) t	preparation methods,
		d)	cleanup methods, and
		e) i	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b) -	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labora	tory control samples (LCSs) including:
		a) I	LCS spiking amounts,
		b) (	Calculated %R for each analyte, and
		c) -	The laboratory's LCS QC limits.
	R7		atrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		•	MS/MSD spiking amounts,
			Concentration of each MS/MSD analyte measured in the parent and
			Calculated %Rs and relative percent differences (RPDs), and
		•	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if appli	
		,	The amount of analyte measured in the duplicate,
		•	The calculated RPD, and
			The laboratory's QC limits for analytical duplicates.
	R9		_s) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
			tem in Laboratory Review Checklist and for each analyte, matrix, and litation under the Texas Laboratory Accreditation Program.
Texas Lab the Except requireme affirm to th	oratory Accr tion Report. nts of the mo te best of my	reditation Program for all the methods, a This data package has been reviewed le ethods used, except where noted by the y knowledge, all problems/anomalies, ol	laboratory data package. This laboratory is NELAC accredited under the analytes, and matrices reported in this data package except as noted in by the laboratory and is complete and technically compliant with the alaboratory in the attached exception reports. By my signature below, I bserved by the laboratory as having the potential to affect the quality of tory Review Checklist, and no information or data have been knowingly
,	applicable:	This laboratory meets an exception un	der 30 TAC&25.6 and was last inspection by
[]		noted in the Exception Reports herein.	11. Any findings affecting the data in this laboratory data package are. The official signing the cover page of the report in which these data are that package and is by signature affirming the above release statement.

Official Title (printed)

Laboratory Director

Date 12/12/2012



LABORATORY REVIEW CHECKLIST: REPORTABLE DATA  Laboratory Name:   Accutest Gulf Coast   LRC Date:   12/12/2012											
Laboratory	Name:		12/12/2012								
		Quarterly Well Sampling, Parker									
Project Na			Laboratory Project Number:	+	2088						
Reviewer			Prep Batch Number(s):			VK57		5			
#1	A ²	DESCRIPTION		YES	NO	NA	NR⁴ E	R#°			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):					_				
		upon receipt?	ndard conditions of sample acceptability	Х							
			nditions described in an exception report?	X							
R2	OI	Sample and quality control (QC) ide		<del>  ^</del>	ш						
- 1\2	<u> </u>		referenced to the laboratory ID numbers?	X							
				l ^							
	01	•	ferenced to the corresponding QC data?	_ X	Ш			_			
R3	OI	Test reports	Luithin halding times?	X		-					
		Were samples prepared and analyzed	all other raw values bracketed by calibration	1			-				
		standards?	all other raw values bracketed by calibration	X							
		Were calculations checked by a peer of	or supervisor?	X							
		Were all analyte identifications checke		X							
		Were sample detection limits reported	7 1 1	X			_				
			samples reported on a dry weight basis?	<del>  ^</del>	H	Х	-				
		Were % moisture (or solids) reported to		t -	H	X	_				
			atile analysis extracted with methanol per								
		SW846 Method 5035?				Х					
		If required for the project, are TIC's rep	ported?			Х					
R4	0	Surrogate recovery data									
		Were surrogates added prior to extrac	tion?	Х							
		Were surrogate percent recoveries in	all samples within the laboratory QC limits?	Х							
R5	OI	Test reports/summary forms for bla	ank samples								
		Were appropriate type(s) of blanks and	alyzed?	Х							
		Were blanks analyzed at the appropria		X							
		Were method blanks taken through the	, ,	X							
		preparation and, if applicable, cleanup	procedures?								
		Were blank concentrations <mql?< td=""><td></td><td>X</td><td>Ш</td><td></td><td></td><td></td></mql?<>		X	Ш						
R6	OI	Laboratory control samples (LCS):									
		Were all COCs included in the LCS?		X							
		_	re analytical procedure, including prep and	X							
		cleanup steps?	0								
		Were LCSs analyzed at required frequ		X							
		Were LCS (and LCSD, if applicable) 9		X							
			data document the laboratory's capability to	X				5			
		detect the COCs at the MDL used to c Was the LCSD RPD within QC limits?		-		Х					
R7	OI	Matrix spike (MS) and matrix spike				^					
107	<del>  0</del>	Were the project/method specified and		X		1	T				
		Were MS/MSD analyzed at the approp		X	H		-+				
		Were MS (and MSD, if applicable) %F	. ,	+^	Х		-+	4			
		Were the MS/MSD RPDs within labora		X	$\vdash$		-+				
R8	OI	Analytical duplicate data									
	<del></del> -	Were appropriate analytical duplicates	s analyzed for each matrix?	X			T				
		Were analytical duplicates analyzed a	•	X			-				
		Were RPDs or relative standard devia		X							
R9	OI	Method quantitation limits (MQLs):	<b>/</b>								
			e included in the laboratory data package?	Х			T				
			entration of the lowest non-zero calibration	Х							
		Are unadjusted MQLs and DCSs inclu			Х			2			
R10	OI	Other problems/anomalies									
		Are all known problems/anomalies/spe	ecial conditions noted in this LRC and ER?	Х							
		Was applicable and available technological	ogy used to lower the SDL to minimize the	Х							
			nder the Texas Laboratory Accreditation								
		Program for the analytes, matrices, an	d methods associated with this laboratory	X				3			
		data package?	•								



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2088	6		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS2	234,	VK57	'8	
#1	A ²	DESCRIPTION		YES	NO	NA3	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		Were response factors and/or relative	e response factors for each analyte within QC	х				
		limits?		^				
		Were percent RSDs or correlation co	efficient criteria met?	Χ				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	l x l				
		calculate the curve?						
		Are ICAL data available for all instrum		Х				
			verified using an appropriate second source	l x l				
		standard?	10 11 (100)(11)(100)					
S2	OI		erification (ICCV AND CCV) and continuing					
		Was the CCV analyzed at the method	1 ,	X				
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each	Х					
		Was the absolute value of the analyte			Χ			
S3	0	Mass spectral tuning	V I					
		Was the appropriate compound for th	X					
- 64		Were ion abundance data within the	method-required QC limits?	^	_			
S4	0	Internal standards (IS)	nes within the method-required QC limits?	ΧΙ				
S5	OI	Raw data (NELAC Section 5.5.10)						
	<u> </u>	Were the raw data (for example, chro						
		analyst?	Х					
		Were data associated with manual in	Х					
S6	0	Dual column confirmation	^					
	<b>├</b>	Did dual column confirmation results			Х			
S7	0	Tentatively identified compounds						
			s spectra and TIC data subject to appropriate		$\overline{}$			
		checks?				Х		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method	od QC limits?			Х		
S9	ı	Serial dilutions, post digestion spi	kes, and method of standard additions					
		Were percent differences, recoveries	, and the linearity within the QC limits			Х		
		specified in the method?				^		
S10	OI	Method detection limit (MDL) studi						
		Was a MDL study performed for each		Х				
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				5
S11	OI	Proficiency test reports						
		* .	ceptable on the applicable proficiency tests or	l x l				
		evaluation studies?						
S12	OI	Standards documentation	NIOT (		_			
		-	s NIST-traceable or obtained from other	Х				
S13	OI	appropriate source?  Compound/analyte identification procedures						
313	0			Х				
S14	OI	Are the procedures for compound/analyte identification documented?  Demonstration of analyst competency (DOC)						
314	01	Was DOC conducted consistent with NELAC Chapter 5?						
		Is documentation of the analyst's competency up-to-date and on file?						
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)						
- 5.5	<del></del>	Are all the methods used to generate the data documentated, verified, and						
		validated, where applicable?						
S16	OI	Laboratory standard operating procedures (SOPs)						
	j.,	Are laboratory SOPs current and on f	Х					
				٠.,				



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012									
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20886									
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS234, VK578									
ER# ¹	Description	on											
	For reporting	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method									
1	blank. The SDL is defined in the report as the MDL.												
	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not												
2	included in the laboratory data package.												
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and												
3	methods a	ssociated with this laboratory data pac	kage for analytes that are listed in the Texas F	ields of Accreditation.									
4	All anomal	ies are discussed in the case narrative	<b>9.</b>										
		, ,	or Method RSKSOP-147/175. The component	s reported are not listed or									
5	do not hav	e values in the Texas TRRP PCL table	es.										

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





# GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20886

Job Number:

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VK578-MB	<b>File ID</b> K13177.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	<b>Analytical Batch</b> VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>	ogate Recoveries			
1868-53-7	Dibromofluoromethane	107%	72-122%		
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%		
2037-26-5	Toluene-D8	107%	80-119%		
460-00-4	4-Bromofluorobenzene	103%	72-126%		



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20886

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 12/06/12	By	Prep Date	Prep Batch	Analytical Batch
VK578-BS	K13175.D	1		EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.5	94	68-119
100-41-4	Ethylbenzene	25	23.4	94	71-117
108-88-3	Toluene	25	23.0	92	73-119
1330-20-7	Xylene (total)	75	71.7	96	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits	
17060-07-0	Dibromofluoromethane	105%	72-122%	
	1,2-Dichloroethane-D4	103%	68-124%	
	Toluene-D8	105%	80-119%	
	4-Bromofluorobenzene	101%	72-126%	



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20886

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20506-1MS	K13179.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1MSD	K13180.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1	K13178.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	TC20506-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	23.4	94	23.1	92	1	68-119/12
100-41-4	Ethylbenzene	ND	25	22.9	92	22.6	90	1	71-117/12
108-88-3	Toluene	ND	25	23.0	92	22.1	88	4	73-119/13
1330-20-7	Xylene (total)	ND	75	71.6	95	69.3	92	3	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20506-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	105%	104%	68-124%
2037-26-5	Toluene-D8	107%	105%	106%	80-119%
460-00-4	4-Bromofluorobenzene	103%	104%	104%	72-126%



^{* =} Outside of Control Limits.



# GC Volatiles

# QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20886

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-MB	File ID SS005099.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20886

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-BS	<b>File ID</b> SS005096.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	20.9	97	68-139
74-85-1	Ethene	57.4	43.4	76	52-145
74-84-0	Ethane	43.3	49.3	114	68-131
74-98-6	Propane	60.6	59.3	98	69-131
75-28-5	Isobutane	72.5	69.9	96	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# Matrix Spike Summary Job Number: TC20886

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-2MS TC21021-2	File ID SS005113.D SS005112.D	<b>Analyzed</b> 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	TC21021-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	1.49	21.5	24.3	106	68-139
74-85-1	Ethene	ND	57.4	55.4	97	52-145
74-84-0	Ethane	ND	43.3	64.1	148*	68-131
74-98-6	Propane	ND	60.6	75.7	125	69-131
75-28-5	Isobutane	ND	72.5	87.2	120	72-131
106-97-8	Butane	ND	76.6	93.9	123	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20886

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-1DUP TC21021-1	File ID SS005111.D SS005110.D	<b>Analyzed</b> 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

CAS No.	Compound	TC21021-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	0.88	0.86	2	53
74-85-1	Ethene	ND	ND	nc	27
74-84-0	Ethane	ND	ND	nc	43
74-98-6	Propane	ND	ND	nc	21
75-28-5	Isobutane	ND	ND	nc	35
106-97-8	Butane	ND	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 28, 2012 17:58 pm		
Job Number:	TC20874			
Account:	EarthCo	n Consultants		
Project:	Quarterly	y Well Sampling, Parker County, Texas		
Project Number:	3rd Quar	ter / WW11-And		
	Legend:	Hit		
		MW44 AND 400440		
Client Sample ID:		WW11-AND-120112		
Lab Sample ID:		TC20874-1		
Date Sampled:		12/01/2012		
Matrix:		Ground Water		
GC/MS Volatiles (SW846 8260B)				
Benzene	mg/l	0.00034 U		
Toluene	mg/l	0.00033 U		
Ethylbenzene	mg/l	0.00032 U		
Xylene (total)	mg/l	0.00087 U		
GC Volatiles (RSKSOP-147/175)				
Methane	mg/l	0.0109		
Ethene	mg/l	0.00050 U		
Ethane	mg/l	0.00050 U		
Propane	mg/l	0.00075 U		
Isobutane	mg/l	0.00075 U		
Butane	mg/l	0.00075 U		





### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW11-And

Accutest Job Number: TC20874

Sampling Date: 12/01/12



EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 27



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Laboratory Director





10165 Harwin Drive Houston, TX 77036 Tel: 713-271-4700

www.accutest.com

Friday, December 28, 2012

EarthCon Consultants 4800 Sugar Grove, Suite 420 Stafford, TX 77477 ATTN: Gabriela Floreslovo

RE: Accutest job TC20874 Reissue

Dear Ms. Floreslovo:

The final report for job number TC20874 has been revised to add a "U" flag to the Ethane result.

I apologize for any inconvenience. Please feel free to contact me if I can be of further assistance.

Sincerely,

Elessa Sommers

Elessa Sommers Project Manager



### **Sections:**

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# **Sample Summary**

EarthCon Consultants

Job No: TC20874

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW11-And

Sample	Collected		Matrix		Client	
Number	Date	Time By	Received	Code Type	Sample ID	
TC20874-1	12/01/12	08:23	12/04/12	AQ Ground Water	WW11-AND-120112	





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20874

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:04:55 P

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20874. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20874

**Account:** EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

**Collected:** 12/01/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20874-1	WW11-AND-1201	12				_

0.0109 0.00050 0.00030 Methane mg/l RSKSOP-147/175



Sample Results	
Report of Analysis	



# **Report of Analysis**

Client Sample ID: WW11-AND-120112

 Lab Sample ID:
 TC20874-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	Analytical Batch
Run #1	X0087071.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	106% 95% 100% 96%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



### 4

# **Report of Analysis**

Client Sample ID: WW11-AND-120112

 Lab Sample ID:
 TC20874-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>	
Run #1	SS005044.D	1	12/06/12	LT	n/a	n/a	GSS232	
Run #2								

### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.0109	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- · Chain of Custody
- LRC Form



### CHAIN OF CUSTODY

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Laboratories			10165 H; TEL. 7	rwin Dr, S 13-271-476	00 FAX	: 713	n, TX 3-271-	7703 4770	6					L	EX Track						Order Co		<u> </u>	_	0-1
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2	City		State	Compar	ny Name									1	a e			1	1					1	SW - Surface Wat
Stafford TX 77477 Project Contact E-mail	Project #														별			1		1	1				SO - Soil SL- Sludge
Gabriela Floreslovo	Project #			Street A	ddress									1	so										SED-Sediment
Phone # Fax #	0													1	, o			1				1	ľ		OI - Oil LIQ - Other Liquid
281-201-3513	Client Purchase	Order#		City					State			Zip	)	1	le 2	,									AIR - Air
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Relinquished by Sampler: Date Time:	- 1007					_		2_	_	_										2					
2 Date Title:	Į.	Received By:					×	D-II	auleba-	D															

Intact
Not intact

Date Time:

TC20874: Chain of Custody Page 1 of 4







### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TO	C20874		Client: EARTHC	O CONS	ULTANTS	;	Project:	3RD QTR WEI	L SAMPLIN	NG,PARKE	R COUNTY,T
Date / Time Received: 12	2/4/2012		Delivery	Method	:	Client	Airbill #'s:				
No. Coolers: 1	Ther	m ID: IR	16				Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adju	sted): #	1: (2.2/2.4	<u>4)</u>								
Cooler Security	Y or N	1_		Υ (	or N	Sample Integ	rity - Docume	ntation	Υ	or N	
1. Custody Seals Present:	✓ [	3.	COC Present:	$\checkmark$		Sample labe	els present on bo	ittles:	<b>✓</b>		
2. Custody Seals Intact:	✓ [	4. Sm	npl Dates/Time OK	$\checkmark$		· ·	abeling complete		<b>✓</b>		
Cooler Temperature	Υ	or N				3. Sample con	tainer label / CO	C agree:	<b>✓</b>		
Temp criteria achieved:	<b>V</b>					Sample Inter	grity - Conditio	on	Υ_	or N	
2. Cooler temp verification:	In	fared Gun				1. Sample recv		<del></del>	<b>~</b>		
3. Cooler media:		Ice (bag)					rs accounted for:		✓		
Quality Control Preservat	ion Y	or N	N/A	WTB	STB	3. Condition of	f sample:			Intact	
Trip Blank present / cooler:	<u> </u>			<b>V</b>		Sample Inter	grity - Instruct	ions	Y	or N	N/A
2. Trip Blank listed on COC:		$\checkmark$					quested is clear:		<u> </u>	П	
3. Samples preserved proper	ly:					,	eived for unspeci			✓	
4. VOCs headspace free:	✓					3. Sufficient vo	olume recvd for	analysis:	<u> </u>		
·	_	_					ng instructions cle				$\checkmark$
						5. Filtering ins	structions clear:				<b>✓</b>
Comments -Received trip bla	ank not list	ted on CO	C.								

TC20874: Chain of Custody Page 2 of 4

Page 1 of 3







### **Problem Resolution**

Accutest Job Number: TC20874

CSR: Elessa Sommers Response Date: 12/4/2012

Response: Trip blank is on separate report.

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TC20874: Chain of Custody Page 3 of 4







### Sample Receipt Log

 Job #:
 TC20874
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCO CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20874-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20874-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20874-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20874-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20874-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20874-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20874: Chain of Custody

Page 4 of 4



#### **Laboratory Data Package Cover Page Appendix A**

This signature page, the laboratory review checklist, and the following reportable data:

TC20874 This data package consists of

[]

Richard Rodriguez

₽	R1	Field chain-of-custody documentation	n;	
	R2	Sample identification cross-reference	<b>;</b> ;	
	R3	Test reports (analytical data sheets) f	for each environmental sample that includes:	
		a)	Items consistent with NELAC 5.13 or ISO/IEO	C 17025 Section 5.10
		b)	dilution factors,	
		c)	preparation methods,	
		d)	cleanup methods, and	
		e)	if required for the project, tentatively identified	d compounds (TICs).
	R4	Surrogate recovery data including:		
		a)	Calculated recovery (%R), and	
		b)	The laboratory's surrogate QC limits.	
	R5	Test reports/summary forms for blank	k samples;	
	R6	Test reports/summary forms for labor	ratory control samples (LCSs) including:	
		a)	LCS spiking amounts,	
		b)	Calculated %R for each analyte, and	
		c)	The laboratory's LCS QC limits.	
₽	R7	Test reports for project matrix spike/n	natrix spike duplicates (MS/MSDs) including:	
		a)	Samples associated with the MS/MSD clearly	y identified,
		b)	MS/MSD spiking amounts,	
		c)	Concentration of each MS/MSD analyte mea	sured in the parent and
		d)	Calculated %Rs and relative percent differen	ces (RPDs), and
		e)	The laboratory's MS/MSD QC limits	
₽	R8	Laboratory analytical duplicate (if app	olicable) recovery and precision:	
		a)	The amount of analyte measured in the dupli	cate,
		b)	The calculated RPD, and	
		c)	The laboratory's QC limits for analytical dupli	icates.
₽	R9	List of method quantitation limits (MC	Ls) and detectability check sample results for	each analyte for each
	R10	Other problems or anomalies.		
The Excep	tion Report	for each "No" or "Not Reviewed (NR)"	item in Laboratory Review Checklist and for e	ach analyte, matrix, and
method for	r which the I	aboratory does not hold NELAC accre	editation under the Texas Laboratory Accredita	tion Program.
Release S	Statement:	I am responsible for the release of this	s laboratory data package. This laboratory is N	NELAC accredited under the
			, analytes, and matrices reported in this data p	
		•	by the laboratory and is complete and technic	
			ne laboratory in the attached exception reports	
			observed by the laboratory as having the pote	, , ,
			atory Review Checklist, and no information or	
withheld.		enance by the laboratory in the Labora	atery retrien encommen, and no information of	add nave been mennigly
Check. if	applicable:	This laboratory meets an exception u	nder 30 TAC&25.6 and was last inspection by	,
[]	арриоавіс.	•	· · ·	
			011. Any findings affecting the data in this lab	
			n. The official signing the cover page of the re	
			data package and is by signature affirming th	e above release statement
		is true.		
QA Mana	_	-		
Name (Pri	nted)	Signature	Official Title (printed)	Date

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά					
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12/	/12/2	012				
		Quarterly Well Sampling, Parker							
Project Na		County, Texas Laboratory Project Number:	TC20874						
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS						
# ¹	A²	DESCRIPTION	YES	NO	NA°	NR⁴	ER #5		
R1	OI	CHAIN-OF-CUSTODY (C-O-C):							
		Did samples meet the laboratory's standard conditions of sample acceptability	X				İ		
		upon receipt?	X				<u> </u>		
		Were all departures from standard conditions described in an exception report?	<del>  ^</del>						
R2	OI	Sample and quality control (QC) identification	- V						
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X						
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X						
R3	OI	Test reports							
		Were samples prepared and analyzed within holding times?	X				<u> </u>		
		Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>Х</td><td></td><td></td><td></td><td>İ</td></mql,>	Х				İ		
		standards? Were calculations checked by a peer or supervisor?	X				<b>-</b>		
		Were all analyte identifications checked by a peer or supervisor?	X				<del>                                     </del>		
		Were sample detection limits reported for all analytes not detected?	^						
		Were all results for soil and sediment samples reported on a dry weight basis?	+		Х				
		Were % moisture (or solids) reported for all soil and sediment samples?	+		X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per	†						
		SW846 Method 5035?	L		Χ		L		
		If required for the project, are TIC's reported?			Х				
R4	0	Surrogate recovery data							
		Were surrogates added prior to extraction?	Х						
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				<u> </u>		
R5	OI	Test reports/summary forms for blank samples							
		Were appropriate type(s) of blanks analyzed?	X						
		Were blanks analyzed at the appropriate frequency?	X						
pr		Were method blanks taken through the entire analytical process, including	X				İ		
		preparation and, if applicable, cleanup procedures?  Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td><td><b>-</b></td></mql?<>	X				<b>-</b>		
R6	OI	Laboratory control samples (LCS):	<del>L^</del>						
-10	<del>  0.</del>	Were all COCs included in the LCS?	Х						
		Was each LCS taken through the entire analytical procedure, including prep and							
		cleanup steps?	X				İ		
		Were LCSs analyzed at required frequency?	Х						
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Х						
		Does the detectablility check sample data document the laboratory's capability to	Х				_		
		detect the COCs at the MDL used to calculate the SDLs?					5		
		Was the LCSD RPD within QC limits?			Χ				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data							
		Were the project/method specified analytes included in the MS and MSD?	X				<u> </u>		
		Were MS/MSD analyzed at the appropriate frequency?	X	L.					
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?	<del> </del>	Х			4		
	<del> </del>	Were the MS/MSD RPDs within laboratory QC limits?	X						
R8	OI	Analytical duplicate data	-						
		Were appropriate analytical duplicates analyzed for each matrix?	X						
		Were analytical duplicates analyzed at the appropriate frequency?  Were RPDs or relative standard deviations within the laboratory QC limits?	X	-			4		
R9	OI	Were RPDs or relative standard deviations within the laboratory QC limits?  Method quantitation limits (MQLs):		Х			4		
1.3	0	Are the MQLs for each method analyte included in the laboratory data package?	Х						
		Do the MQLs correspond to the concentration of the lowest non-zero calibration	^	$\vdash$					
		Are unadjusted MQLs and DCSs included in the laboratory data package?	<del>  ^`</del>	Х			2		
R10	OI	Other problems/anomalies							
	<u> </u>	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Х						
		Was applicable and available technology used to lower the SDL to minimize the	X						
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation							
		Program for the analytes, matrices, and methods associated with this laboratory	Х				3		
		data package?	L				L		
					_				



Laboratory Name:		Accutest Gulf Coast LRC Date:				12/12/2012			
Project Na	me:	Quarterly Well Sampling, Parker	Well Sampling, Parker Laboratory Project Number:						
Reviewer	Name:	Anita Patel Prep Batch Number(s):				GSS232, VX1673			
#1	A ²	DESCRIPTION		YES	NO	$NA^3$	NR⁴	ER#5	
S1	OI	Initial calibration (ICAL)							
		· ·	e response factors for each analyte within QC	l _x l					
		limits?							
		Were percent RSDs or correlation co		X					
			Vas the number of standards recommended in the method used for all analytes?						
			ne lowest and highest standard used to	x					
		calculate the curve?							
		Are ICAL data available for all instrum		Х					
		standard?	as the initial calibration curve been verified using an appropriate second source						
S2	OI		prification (ICCV AND CCV) and continuing						
- 32	<u> </u>		Initial and continuing calibration verification (ICCV AND CCV) and continuing Was the CCV analyzed at the method-required frequency?						
			alyte within the method-required QC limits?	X					
		Was the ICAL curve verified for each		X					
		Was the absolute value of the analyte			Х				
S3	0	Mass spectral tuning	o concentration in the merganic ces iniss.						
		Was the appropriate compound for the	ne method used for tuning?	Х					
		Were ion abundance data within the		Х					
S4	0	Internal standards (IS)							
		Were IS area counts and retention tin	nes within the method-required QC limits?	Х					
S5	OI	Raw data (NELAC Section 5.5.10)							
		Were the raw data (for example, chro	х						
		analyst?							
		Were data associated with manual in	Х						
S6	0	Dual column confirmation							
		Did dual column confirmation results			Х				
S7	0	Tentatively identified compounds					-		
			s spectra and TIC data subject to appropriate			Χ			
S8	ı	checks? Interference Check Sample (ICS) r	o o ulto						
30	<u>'</u>	Were percent recoveries within metho				Х			
S9			kes, and method of standard additions			^			
	<u>'</u>		, and the linearity within the QC limits				1		
		specified in the method?	, and the initiality want the Go initial			Χ			
S10	OI	Method detection limit (MDL) studi	es						
		Was a MDL study performed for each		Х					
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				5	
S11	OI	Proficiency test reports							
		Was the laboratory's performance ac	ceptable on the applicable proficiency tests or	х					
		evaluation studies?		_ ^					
S12	OI	Standards documentation							
		1	s NIST-traceable or obtained from other	l x l					
		appropriate source?							
S13	OI	Compound/analyte identification p		V					
S14	OI	Are the procedures for compound/and	•	Х					
314	0	Demonstration of analyst compete Was DOC conducted consistent with		Х			1		
		Is documentation of the analyst's com		X			-+		
S15	OI	·	ion for methods (NELAC Chapter 5)						
313			the data documentated, verified, and				1		
		validated, where applicable?	and documentated, vermou, and	X					
S16	OI	Laboratory standard operating pro	ocedures (SOPs)						
		Are laboratory SOPs current and on f		Х					
		Are laboratory SOF's current and on the for each method performed?							



	LABOF	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports						
Laboratory	Laboratory Name: Accutest Gulf Coast		LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20874						
Reviewer Name: Anita Patel		Anita Patel	Prep Batch Number(s):	GSS232, VX1673						
ER# ¹	Description									
	For reporting purposes, the MQL is defined in the report as the RL. The unadjusted MQL/RL is reported in the method									
1		SDL is defined in the report as the MI								
	For reporti	ng purposes, the method blank repres	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not						
2	included in the laboratory data package.									
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and									
3	methods a	ssociated with this laboratory data pac	kage for analytes that are listed in the Texas F	ields of Accreditation.						
4		ies are discussed in the case narrative								
5		tory does not perform DCS analysis for e values in the Texas TRRP PCL table	or Method RSKSOP-147/175. The component es.	s reported are not listed or						

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





# GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20874

PESTXST EarthCon Consultants **Account:** 

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VX1673-MB	<b>File ID</b> X0087062.D	<b>DF</b>	<b>Analyzed</b> 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

### The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	99%	80-119%
460-00-4	4-Bromofluorobenzene	98%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20874

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VX1673-BS	<b>File ID</b> X0087060.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
17060-07-0	Dibromofluoromethane	101%	72-122%
	1,2-Dichloroethane-D4	99%	68-124%
	Toluene-D8	101%	80-119%
	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20874

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	MSD TC20864-1	
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



# GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20874

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-MB	File ID SS005026.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20874

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-BS	File ID SS005023.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	21.0	98	68-139
74-85-1	Ethene	57.4	54.7	95	52-145
74-84-0	Ethane	43.3	56.7	131	68-131
74-98-6	Propane	60.6	68.2	113	69-131
75-28-5	Isobutane	72.5	77.3	107	72-131
106-97-8	Butane	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Matrix Spike Summary**

Job Number: TC20874

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample TC20890-1MS	File ID SS005029.D	<b>DF</b>	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	<b>Analytical Batch</b> GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* <del>6</del> 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20874

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20874-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.	Dec 12, 2012 13:12					
Job Number:	TC20882	TC20882				
Account:	EarthCo	n Consultants				
Project:	Quarterly	y Well Sampling, Parker County, Texas				
Project Number:	3rd Quar	ter / WW10-Hay				
	Legend:	Hit				
Client Sample ID:		WW10-HAY-120212				
Lab Sample ID:		TC20882-1				
Date Sampled:		12/02/2012				
Matrix:		Ground Water				
GC/MS Volatiles (SW846 8260B)						
Benzene	mg/l	0.00034 U				
Toluene	mg/l	0.00033 U				
Ethylbenzene	mg/l	0.00032 U				
Xylene (total)	mg/l	0.00087 U				
GC Volatiles (RSKSOP-147/175)						
Methane	mg/l	0.334				
Ethene	mg/l	0.00050 U				
Ethane	mg/l	0.0590				
Propane	mg/l	0.0113				
Isobutane	mg/l	0.00075 U				
Butane	mg/l	0.0025				



12/12/12



### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW10-Hay

Accutest Job Number: TC20882

Sampling Date: 12/02/12

### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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# **Sample Summary**

EarthCon Consultants

Job No: TC20882

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW10-Hay

Sample	Collected		D . 1	Matr	<del></del>	Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC20882-1	12/02/12	08:15	12/04/12	AQ	Ground Water	WW10-HAY-120212





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20882

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 9:41:33 AM

1 Sample was collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20882. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK578

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20506-1MS, TC20506-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.</li>

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20882

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 12/02/12**Project:** 

**Collected:** 

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20882-1	WW10-HAY-1202	212				
Methane		0.334	0.0050	0.0030	mg/l	RSKSOP-147/175
Ethane		0.0590	0.0010	0.00050	mg/l	RSKSOP-147/175
Propane		0.0113	0.0015	0.00075	mg/l	RSKSOP-147/175
Butane		0.0025	0.0015	0.00075	mg/l	RSKSOP-147/175



Sample Results	
Report of Analysis	



### 4

# **Report of Analysis**

Client Sample ID: WW10-HAY-120212

 Lab Sample ID:
 TC20882-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K13196.D	1	12/06/12	EM	n/a	n/a	VK578
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	109% 107% 105% 105%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



### 1

# **Report of Analysis**

Client Sample ID: WW10-HAY-120212

 Lab Sample ID:
 TC20882-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	SS005073.D	1	12/07/12	LT	n/a	n/a	GSS233
Run #2	SS005075.D	10	12/07/12	LT	n/a	n/a	GSS233

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.334 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0590	0.0010	0.00050	mg/l	
74-98-6	Propane	0.0113	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.0025	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



# CHAIN OF CUSTODY

BAC	Samuel S		man Grand	T

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	Turnaround Time ( Business days)					Comme	roini		Deliv				FRRP		800000	MINIMA YES	(Secondarion)	distribution of	SATISTICS CONTROL	. 001		, - , -				
	Standard 5 Day RUSH	Approved By (Ac	cutest PM): / Date:		ᅵ片	Comme							EDD	Form	at											
	4 Day RUSH					FULT1					Ī		Other													
	3 Day RUSH					REDT1			)								-									
	2 Day RUSH					Comme	rcial					0	-t.				ļ									
	1 Day EMERGENCY		Q.						mercia mercia					ımma	rv											
	Emergency & Rush T/A data available VIA La	. 692	20					Com	mercia	I "C" =	Resu	ults +	QC &	Surro	gate Su	ımmary					1000000	1900	ese colores a	194 -03W		
		- 7-7-	Jampie Gustouy	must be doct	mented I	pelow ea	ach t	ime sa		s cha			essic	n, in	cludin	g cour	er deliv	Date 1	Time:		19050249300	ved By:		VI21912013360	energy and	
Received By:			-			_	<u> </u>	12	quisii	.cu by	•									2						
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3		400	3				_	_	4	tody S				Г	Intac		Dress	rved wh	ere ancli	cable	4		On le	:0	Coole	r Temp.
Relin	quished by:	Date Time:	Received By:						Cus	tody S	eal#				Not		riese		appli							
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TC20882: Chain of Custody Page 1 of 4







### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20	882	Client:	EARTHCON C	ONSULTAN	TS	Project:	3RD QTR WEL	L SAMPLI	NG,PAR	KER COUNTY,T
Date / Time Received: 12/4/2	2012		Delivery Meth	od:	Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6				Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adjusted	d): #1: (2.2	2/2.4)			_					
Cooler Security Y	or N		<u> Y</u>	or N	Sample Integr	rity - Docume	ntation_	<u>Y</u>	or N	<u> </u>
1. Custody Seals Present:		3. COC Pr	resent:		Sample label	ls present on bo	ittles:	<b>✓</b>		]
2. Custody Seals Intact:	□ 4	. Smpl Date	s/Time OK		2. Container lab	•		<b>✓</b>		]
Cooler Temperature	Y or N	<u>1_</u>			3. Sample conta	ainer label / CO	C agree:	✓		]
1. Temp criteria achieved:	<b>V</b>				Sample Integ	ritv - Conditio	on	<u>Y</u>	or N	<u> </u>
Cooler temp verification:	Infared C	Gun			Sample recvo			<b>✓</b>		
3. Cooler media:	Ice (ba	g)			2. All containers			<b>✓</b>	Г	1
Quality Control Preservation	Y or	N N/A	WT	B STB	3. Condition of	sample:			Intact	
1. Trip Blank present / cooler:	<b>V</b>		<b>✓</b>		Sample Integ	rity - Instruct	ions	Υ	or N	N/A
2. Trip Blank listed on COC:					1. Analysis req	uested is clear:		<u> </u>		
3. Samples preserved properly:	✓ [				2. Bottles recei	ived for unspeci	fied tests		<u>✓</u>	
4. VOCs headspace free:	✓ [				3. Sufficient vo	lume recvd for a	analysis:	<b>✓</b>		
					4. Compositing	g instructions cle	ear:			$\checkmark$
					5. Filtering inst	tructions clear:				<b>✓</b>
Comments -Received trip blank	not listed on	COC.			_					

TC20882: Chain of Custody Page 2 of 4

Page 1 of 3







#### **Problem Resolution**

Accutest Job Number: TC20882

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

15

TC20882: Chain of Custody Page 3 of 4









### Sample Receipt Log

 Job #:
 TC20882
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20882-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20882-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20882-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20882-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20882-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20882-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20882: Chain of Custody

Page 4 of 4



#### Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20882 This data package consists of

[]

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody documentation;	3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
□	R2	Sample identification cross-reference;	
D	R3	Test reports (analytical data sheets) for each	ch environmental sample that includes:
		a) Items	s consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b) diluti	on factors,
		c) prep	aration methods,
		d) clear	nup methods, and
		e) if req	uired for the project, tentatively identified compounds (TICs).
Ģ	R4	Surrogate recovery data including:	
		a) Calc	ulated recovery (%R), and
		b) The	aboratory's surrogate QC limits.
Ģ	R5	Test reports/summary forms for blank sam	oles;
Ģ	R6	Test reports/summary forms for laboratory	control samples (LCSs) including:
		a) LCS	spiking amounts,
		b) Calc	ulated %R for each analyte, and
		c) The	laboratory's LCS QC limits.
	R7	Test reports for project matrix spike/matrix	spike duplicates (MS/MSDs) including:
		a) Sam	ples associated with the MS/MSD clearly identified,
		b) MS/N	MSD spiking amounts,
		c) Cond	centration of each MS/MSD analyte measured in the parent and
		d) Calc	ulated %Rs and relative percent differences (RPDs), and
		e) The	aboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if applicable	e) recovery and precision:
		a) The	amount of analyte measured in the duplicate,
		b) The	calculated RPD, and
		c) The	aboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQLs) a	nd detectability check sample results for each analyte for each
	R10	Other problems or anomalies.	
The Exce	ption Report	t for each "No" or "Not Reviewed (NR)" item	n Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the l	laboratory does not hold NELAC accreditation	on under the Texas Laboratory Accreditation Program.
Texas Lab the Excep requirement affirm to the the data, I	poratory Acc stion Report. ents of the m the best of m	creditation Program for all the methods, analy.  This data package has been reviewed by the nethods used, except where noted by the lab by knowledge, all problems/anomalies, obser	ratory data package. This laboratory is NELAC accredited under the rtes, and matrices reported in this data package except as noted in e laboratory and is complete and technically compliant with the oratory in the attached exception reports. By my signature below, I ved by the laboratory as having the potential to affect the quality of Review Checklist, and no information or data have been knowingly
withheld.	applicable:	: This laboratory meets an exception under	30 TAC&25.6 and was last inspection by
[]	.,		
		noted in the Exception Reports herein. The	ony findings affecting the data in this laboratory data package are official signing the cover page of the report in which these data are backage and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIS	T: REPORTABLE	DAT	Α			
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:		12/	12/2	012		
		Quarterly Well Sampling, Parker						
Project Na		County, Texas Laboratory Proj			2088			
Reviewer		Anita Patel Prep Batch Nur	nber(s):			VK57		5
#1	A ²	DESCRIPTION		YES	NO	NA	NR*	ER# ⁵
R1	OI	CHAIN-OF-CUSTODY (C-O-C):	o of comple coceptability					
		Did samples meet the laboratory's standard condition upon receipt?	s or sample acceptability	Х				
		Were all departures from standard conditions describ	ed in an exception report?	Х			-+	
R2	OI	Sample and quality control (QC) identification	од нтан охоорион горон.					
	<del></del>	Are all field sample ID numbers cross-referenced to the	ue laboratory ID numbers?	Х			$\overline{}$	
		Are all laboratory ID numbers cross-referenced to the		X			$\dashv$	
R3	OI	Test reports	corresponding QC data:	<u> </u>	ш			
- 113	01	Were samples prepared and analyzed within holding	times?	Х			$\overline{}$	
		Other than those results <mql, all="" other="" raw="" td="" val<="" were=""><td></td><td></td><td></td><td></td><td>$\rightarrow$</td><td></td></mql,>					$\rightarrow$	
		standards?	acc stached sy canstaller.	Х				
		Were calculations checked by a peer or supervisor?		Х			$\neg$	
		Were all analyte identifications checked by a peer or s	supervisor?	Х			$\neg$	
		Were sample detection limits reported for all analytes	•	Х			$\neg$ †	
		Were all results for soil and sediment samples reported				Х		
		Were % moisture (or solids) reported for all soil and s				Х		
		Were bulk soils/solids samples for volatile analysis ex	tracted with methanol per			Х	$\neg$	
		SW846 Method 5035?					<b>-</b> ∔	
		If required for the project, are TIC's reported?				Х		
R4	0	Surrogate recovery data						
		Were surrogates added prior to extraction?	in the Laboratory OC limited	X			-+	
	01	Were surrogate percent recoveries in all samples with	in the laboratory QC limits?	X			_	
R5	OI	Test reports/summary forms for blank samples Were appropriate type(s) of blanks analyzed?		Х			$\overline{}$	
		Were blanks analyzed at the appropriate frequency?		X			-+	
		Were method blanks taken through the entire analytic	al process including				-+	
		preparation and, if applicable, cleanup procedures?	ar process, morading	Х				
		Were blank concentrations <mql?< td=""><td></td><td>Х</td><td></td><td></td><td>$\neg$</td><td></td></mql?<>		Х			$\neg$	
R6	OI	Laboratory control samples (LCS):						
		Were all COCs included in the LCS?		Х			$\neg$	
		Was each LCS taken through the entire analytical pro	cedure, including prep and	· ·				
		cleanup steps?		Х				
		Were LCSs analyzed at required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the I	aboratory QC limits?	Х				
		Does the detectablility check sample data document t		X				5
		detect the COCs at the MDL used to calculate the SD	Ls?	_ ^_				
		Was the LCSD RPD within QC limits?	N		Щ	Х		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSI		.,			-	
		Were the project/method specified analytes included		X	$\vdash$		$\dashv$	
		Were MS/MSD analyzed at the appropriate frequency		X	V			
		Were MS (and MSD, if applicable) %Rs within the lab Were the MS/MSD RPDs within laboratory QC limits?		X	Х		$\dashv$	4
R8	OI	Analytical duplicate data		^				
	<del>                                     </del>	Were appropriate analytical duplicates analyzed for e	ach matrix?	Х		1	1	
		Were analytical duplicates analyzed for ex-		X			$\dashv$	
		Were RPDs or relative standard deviations within the		X	H		$\dashv$	
R9	OI	Method quantitation limits (MQLs):						
	1	Are the MQLs for each method analyte included in the	a laboratory data package?	Х				
		Do the MQLs correspond to the concentration of the lo		Х			一	
		Are unadjusted MQLs and DCSs included in the labo			Х		$\neg$	2
R10	OI	Other problems/anomalies						
		Are all known problems/anomalies/special conditions		Х				
		Was applicable and available technology used to low	er the SDL to minimize the	Х				
		Is the laboratory NELAC-accredited under the Texas I	_aboratory Accreditation				Т	
		Program for the analytes, matrices, and methods asso	ciated with this laboratory	Х				3
		data package?						



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2088	2				
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS2	233,	VK57	78			
#1	A ²	DESCRIPTION		YES	NO	NA3	NR⁴	ER#5		
S1	OI	Initial calibration (ICAL)								
		Were response factors and/or relative	e response factors for each analyte within QC	х						
		limits?		^						
		Were percent RSDs or correlation co	efficient criteria met?	Х						
			mended in the method used for all analytes?	Х						
		Were all points generated between the	l x l							
		calculate the curve?								
		Are ICAL data available for all instrum		Х						
			verified using an appropriate second source	x						
		standard?								
S2	OI		erification (ICCV AND CCV) and continuing							
		Was the CCV analyzed at the method	1 ,	Х						
			alyte within the method-required QC limits?	Х						
		Was the ICAL curve verified for each	,	Х						
			e concentration in the inorganic CCB <mdl?< th=""><th></th><th></th><th>Χ</th><th></th><th></th></mdl?<>			Χ				
S3	0	Mass spectral tuning	and a land for the control of	V 1						
		Was the appropriate compound for th		X						
- 64		Were ion abundance data within the	method-required QC limits?	^	_					
S4	0	Internal standards (IS)	nes within the method-required QC limits?	ΧΙ						
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC limits?							
	OI .		matograms, spectral data) reviewed by an							
		analyst?	matograms, spectral data) reviewed by an	X						
		Were data associated with manual in	tegrations flagged on the raw data?	Х						
S6	0	Dual column confirmation	togrations hagged on the raw data.	^						
		Did dual column confirmation results	meet the method-required QC?			Х				
S7	0	Tentatively identified compounds (								
	_		s spectra and TIC data subject to appropriate							
		checks?				Х				
S8	ı	Interference Check Sample (ICS) r	esults							
		Were percent recoveries within method	od QC limits?			Χ				
S9	I	Serial dilutions, post digestion spi	kes, and method of standard additions							
		Were percent differences, recoveries	, and the linearity within the QC limits			Х				
		specified in the method?				^				
S10	OI	Method detection limit (MDL) studi								
		Was a MDL study performed for each		Х						
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				5		
S11	OI	Proficiency test reports								
		* .	ceptable on the applicable proficiency tests or	l x l						
		evaluation studies?								
S12	OI	Standards documentation	NIOT (		_					
		-	s NIST-traceable or obtained from other	Х						
S13	OI	appropriate source?  Compound/analyte identification p	recodures							
313	UI UI			Х						
S14	OI	Are the procedures for compound/analyte identification documented?  Demonstration of analyst competency (DOC)								
314	<u> </u>	Was DOC conducted consistent with		Х						
		Is documentation of the analyst's competency up-to-date and on file?								
S15	OI		ion for methods (NELAC Chapter 5)	Х						
- 5.5			the data documentated, verified, and							
		validated, where applicable?	and add additionated, voimou, and	X						
S16	OI	Laboratory standard operating pro	ocedures (SOPs)							
	<u> </u>	Are laboratory SOPs current and on f		Х						
	·			٠.,						



		Accutest Gulf Coast	LRC Date:	12/12/2012					
Project Na	me:	Quarterly Well Sampling, Parket	Laboratory Project Number:	TC20882					
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VK578					
ER# ¹	Descripti	on							
			ne report as the RL. The unadjusted MQL/R	is reported in the method					
11		e SDL is defined in the report as the M							
2	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not included in the laboratory data package.								
3	1	•	Texas Laboratory Accreditation Program for ckage for analytes that are listed in the Texa						
4	All anoma	lies are discussed in the case narrativ	e.						
5	1	atory does not perform DCS analysis f ve values in the Texas TRRP PCL tab	or Method RSKSOP-147/175. The componies.	ents reported are not listed o					
		<u> </u>							
	l								

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





# GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20882

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VK578-MB	<b>File ID</b> K13177.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
1868-53-7	Dibromofluoromethane	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	107%	80-119%
460-00-4	4-Bromofluorobenzene	103%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20882

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VK578-BS	<b>File ID</b> K13175.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VK578

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.5	94	68-119
100-41-4	Ethylbenzene	25	23.4	94	71-117
108-88-3	Toluene	25	23.0	92	73-119
1330-20-7	Xylene (total)	75	71.7	96	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	105%	80-119%
460-00-4	4-Bromofluorobenzene	101%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

### σ

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20882

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20506-1MS	K13179.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1MSD	K13180.D	1	12/06/12	EM	n/a	n/a	VK578
TC20506-1	K13178.D	1	12/06/12	EM	n/a	n/a	VK578

The QC reported here applies to the following samples:

CAS No.	Compound	TC20506-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	23.4	94	23.1	92	1	68-119/12
100-41-4	Ethylbenzene	ND	25	22.9	92	22.6	90	1	71-117/12
108-88-3	Toluene	ND	25	23.0	92	22.1	88	4	73-119/13
1330-20-7	Xylene (total)	ND	75	71.6	95	69.3	92	3	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20506-1	Limits
1868-53-7	Dibromofluoromethane	108%	108%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	103%	105%	104%	68-124%
2037-26-5	Toluene-D8	107%	105%	106%	80-119%
460-00-4	4-Bromofluorobenzene	103%	104%	104%	72-126%



^{* =} Outside of Control Limits.



# GC Volatiles

# QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20882

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS233-MB	<b>File ID</b> SS005056.D	<b>DF</b> 1	<b>Analyzed</b> 12/07/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20882

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS233-BS	File ID SS005054.D	<b>DF</b> 1	<b>Analyzed</b> 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

## **Matrix Spike Summary**

Job Number: TC20882

PESTXST EarthCon Consultants Account:

Project: Quarterly Well Sampling, Parker County, Texas

Sample TC20970-2MS ^a TC20970-2 ^a	<b>File ID</b> SS005067.D SS005066.D	<b>Analyzed</b> 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

TC20882-1

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

## **Duplicate Summary Job Number:** TC20882

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC20879-1DUP TC20879-1	File ID SS005062.D SS005061.D	<b>Analyzed</b> 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

TC20882-1

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:08 pm				
Job Number:	TC20871					
Account:	EarthCor	EarthCon Consultants Quarterly Well Sampling, Parker County, Texa				
Project:	Quarterly					
Project Number:	3rd Quar	ter / WW7-Mer				
	Legend:	Hit				
Client Sample ID:		WW7-MER-113012				
Lab Sample ID:		TC20871-1				
Date Sampled:		11/30/2012				
Matrix:		Ground Water				
GC/MS Volatiles (SW846 8260B)						
Benzene	mg/l	0.00034 U				
Toluene	mg/l	0.00033 U				
Ethylbenzene	mg/l	0.00032 U				
Xylene (total)	mg/l	0.00087 U				
GC Volatiles (RSKSOP-147/175)						
Methane	mg/l	1.63				
Ethene	mg/l	0.00050 U				
Ethane	mg/l	0.0629				
Propane	mg/l	0.00075 U				
Isobutane	mg/l	0.00075 U				
Butane	mg/l	0.00075 U				



12/12/12



## Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW7-Mer

Accutest Job Number: TC20871

Sampling Date: 11/30/12

### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

### **Sections:**

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## **Sample Summary**

EarthCon Consultants

Job No: TC20871

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW7-Mer

Sample	Collected			Matr		Client
Number	Date	Time By	Received	Code	Туре	Sample ID
TC20871-1	11/30/12	10:30	12/04/12	AQ	Ground Water	WW7-MER-113012





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20871

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:05:56 P

1 Sample was collected on 11/30/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20871. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20871

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 11/30/12**Project:** 

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20871-1	WW7-MER-1130	12				
Methane Ethane		1.63 0.0629	0.0050 0.0010	0.0030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175





Sample Results		
Report of Analysis		



### 4

## **Report of Analysis**

Client Sample ID: WW7-MER-113012

 Lab Sample ID:
 TC20871-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	X0087068.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	104% 97% 97% 97%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



### 4

## **Report of Analysis**

Client Sample ID: WW7-MER-113012

 Lab Sample ID:
 TC20871-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	SS005034.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005036.D	10	12/06/12	LT	n/a	n/a	GSS232

### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.63 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0629	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

 $MQL = \ Method \ Quantitation \ Limit$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



Giller Trans	Burd Carel Carel & Sure Con	3F 81+	10165 Harwin Dr, Ste 150 Houston, TX 77036				F	FED-EX Tracking #				- 1	Bottle Order Control #														
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TC20871: Chain of Custody
Page 1 of 4







### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20	871	Client:	EARTHCO	N CON	SULTANT	S	Project:	3RD QTR WEL	L SAMPLI	NG,PAF	RKER COL	JNTY,T
Date / Time Received: 12/4/	2012		Delivery M	ethod:		Client	Airbill #'s:					
No. Coolers: 1	Therm ID:	IR6					Temp Adjus	tment Factor:	0.2			
Cooler Temps (Initial/Adjuste	d): #1: (2.2	/2.4)										
Cooler Security Y	or N			Υo	r N_	Sample Integr	ity - Docume	ntation_	Υ	or N	<u> </u>	
1. Custody Seals Present:		3. COC P		<b>✓</b>		Sample label	s present on bo	ttles:	<b>✓</b>	ſ		
2. Custody Seals Intact:   ✓	_ 4.	Smpl Date	s/Time OK	<b>✓</b>		2. Container lab	eling complete:		<b>✓</b>	[		
Cooler Temperature	Y or N	<u>L</u>				3. Sample conta	ainer label / CO	C agree:	<b>✓</b>	[		
1. Temp criteria achieved:	<b>v</b>					Sample Integ	rity - Conditio	on	Υ	or N	<u> </u>	
Cooler temp verification:	Infared G	un				Sample recvo	d within HT:		<b>✓</b>	[		
Cooler media:	Ice (baç	3)				2. All containers	s accounted for:		<b>✓</b>	[		
<b>Quality Control Preservation</b>	Y or l	N N/A	<u>. 1</u>	WTB	STB	3. Condition of	sample:			Intact		
1. Trip Blank present / cooler:	<b>V</b>			<b>✓</b>		Sample Integ	rity - Instructi	ons	Υ	or N	N/A	
2. Trip Blank listed on COC:							uested is clear:		<u> </u>			
3. Samples preserved properly:	<b>V</b>						ived for unspeci			<b>✓</b>		
4. VOCs headspace free:	<b>v</b>					3. Sufficient vo	lume recvd for a	analysis:	<b>~</b>		]	
						4. Compositing	instructions cle	ear:				
						5. Filtering inst	ructions clear:					
Comments - Received trip blank	not listed on	COC.										

TC20871: Chain of Custody Page 2 of 4

Page 1 of 3







### **Problem Resolution**

Accutest Job Number: TC20871

CSR: Elessa Sommers

Response: Trip blank is on separate report.

Response Date: 12/5/2012

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TC20871: Chain of Custody
Page 3 of 4







### Sample Receipt Log

 Job #:
 TC20871
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20871-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20871-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20871-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20871-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20871-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20871-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20871: Chain of Custody

Page 4 of 4



#### Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20871 This data package consists of

[]

QA Manager Name (Printed)

Richard Rodriguez

Signature

į.	R1	Field chain-of-custody documentation	J;
	R2	Sample identification cross-reference	
D	R3	Test reports (analytical data sheets) for	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for blank	samples;
	R6	Test reports/summary forms for labor	atory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
Ģ	R7	Test reports for project matrix spike/m	natrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicate (if app	licable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation limits (MQ	Ls) and detectability check sample results for each analyte for each
Ō	R10	Other problems or anomalies.	
		, ,	item in Laboratory Review Checklist and for each analyte, matrix, and
metnoa to	r wnich the i	laboratory does not hold NELAC accre	ditation under the Texas Laboratory Accreditation Program.
Texas Lab the Excep requirement affirm to the the data, he withheld.	poratory Acc tion Report. ents of the m ne best of my nave been id	reditation Program for all the methods, This data package has been reviewed ethods used, except where noted by th y knowledge, all problems/anomalies, of lentified by the laboratory in the Labora	laboratory data package. This laboratory is NELAC accredited under the analytes, and matrices reported in this data package except as noted in by the laboratory and is complete and technically compliant with the le laboratory in the attached exception reports. By my signature below, I observed by the laboratory as having the potential to affect the quality of atory Review Checklist, and no information or data have been knowingly
	applicable:		nder 30 TAC&25.6 and was last inspection by
[]		noted in the Exception Reports herein	011. Any findings affecting the data in this laboratory data package are n. The official signing the cover page of the report in which these data are data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12/	/12/2	012		
		Quarterly Well Sampling, Parker					
Project Na		County, Texas Laboratory Project Number:	+	2087			
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS				
# ¹	A²	DESCRIPTION	YES	NO	NA°	NR⁴	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):					
		Did samples meet the laboratory's standard conditions of sample acceptability	X				İ
		upon receipt?	X				-
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) identification	- V				
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				-
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were samples prepared and analyzed within holding times?	X				<u> </u>
		Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>Х</td><td></td><td></td><td></td><td>İ</td></mql,>	Х				İ
		standards? Were calculations checked by a peer or supervisor?	X				<b>-</b>
		Were all analyte identifications checked by a peer or supervisor?	X				<del>                                     </del>
		Were sample detection limits reported for all analytes not detected?	l x				<del>                                     </del>
		Were all results for soil and sediment samples reported on a dry weight basis?	+^		Х		
		Were % moisture (or solids) reported for all soil and sediment samples?	+		X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per	+				
		SW846 Method 5035?			Х		İ
		If required for the project, are TIC's reported?	1		Х		
R4	0	Surrogate recovery data					
		Were surrogates added prior to extraction?	Х				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	Х				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	Х				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including	l x				İ
		preparation and, if applicable, cleanup procedures?	<del>                    _     _     _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _</del>				-
R6	OI	Were blank concentrations <mql? (lcs):<="" control="" laboratory="" samples="" td=""><td>X</td><td>_</td><td></td><td></td><td>_</td></mql?>	X	_			_
- 10	01	Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and					
		cleanup steps?	Х				İ
		Were LCSs analyzed at required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to					_
		detect the COCs at the MDL used to calculate the SDLs?	X				5
		Was the LCSD RPD within QC limits?			Χ		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	Х				
		Were MS/MSD analyzed at the appropriate frequency?	Х				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?		Х			4
		Were the MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				<u> </u>
		Were analytical duplicates analyzed at the appropriate frequency?	X	L.			<u> </u>
		Were RPDs or relative standard deviations within the laboratory QC limits?		Х			4
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?  Do the MQLs correspond to the concentration of the lowest non-zero calibration	X				<del>                                     </del>
		Are unadjusted MQLs and DCSs included in the laboratory data package?	+^-	Х			2
R10	OI	Other problems/anomalies					
	<del>  "</del>	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Х				
		Was applicable and available technology used to lower the SDL to minimize the	T X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation	Ť				
		Program for the analytes, matrices, and methods associated with this laboratory	X				3
		data package?	1				1
		•			_		



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/1	2/20	)12		
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC2	2087	1		
Reviewer		Anita Patel	Prep Batch Number(s):	GSS2	32 \	VX16	73	
#1	I A ²	DESCRIPTION	i rop Bator Hamber(o).					ER#
 S1	OI	Initial calibration (ICAL)		120	140	14/1	IVIX	LIV #
31	01		e response factors for each analyte within QC		_			
		limits?	response factors for each analyte within QC	X				
		Were percent RSDs or correlation co	officient criteria met?	l x		_		
		·		X				
			mended in the method used for all analytes?	<del>  ^  </del>				
			e lowest and highest standard used to	x				
		calculate the curve?		l	_			
		Are ICAL data available for all instrum		X	-			
			the initial calibration curve been verified using an appropriate second source					
		standard?		$\sqcup$				
S2	OI		and continuing calibration verification (ICCV AND CCV) and continuing					
			the CCV analyzed at the method-required frequency?					
			alyte within the method-required QC limits?	Х				
		Was the ICAL curve verified for each		Х				
			concentration in the inorganic CCB <mdl?< td=""><td></td><td></td><td>Χ</td><td></td><td></td></mdl?<>			Χ		
S3	0	Mass spectral tuning						
		Was the appropriate compound for the	e method used for tuning?	X				
		Were ion abundance data within the	method-required QC limits?	X				
S4	0	Internal standards (IS)						
		Were IS area counts and retention tin	nes within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chro	matograms, spectral data) reviewed by an	x				
		analyst?		^				
		Were data associated with manual in	tegrations flagged on the raw data?	X				
S6	0	Dual column confirmation						
		Did dual column confirmation results	meet the method-required QC?		П	Х		
S7	0	Tentatively identified compounds	TICs):					
			s spectra and TIC data subject to appropriate		П			
		checks?	, , , , , , , , , , , , , , , , , , , ,			Х		
S8	ı	Interference Check Sample (ICS) r	esults					
		Were percent recoveries within method			П	Х		
S9			kes, and method of standard additions					
			, and the linearity within the QC limits		П			
		specified in the method?	, ,			Х		
S10	OI	Method detection limit (MDL) studi	es					
	-	Was a MDL study performed for each		Х	П			
		Is the MDL either adjusted or support		X				5
S11	OI	Proficiency test reports	54 2) the analysis of 2000.	<del>  ^  </del>				
	<u> </u>		ceptable on the applicable proficiency tests or		T			
		evaluation studies?		X				
S12	OI	Standards documentation						
	<del></del>		s NIST-traceable or obtained from other		T			
		appropriate source?	cc. haddable of obtained from other	X	ļ			
S13	OI	Compound/analyte identification p	rocedures					
313	<u> </u>	Are the procedures for compound/ana		ΧI				
S14	OI	Demonstration of analyst compete	•					
314	<u> </u>	Was DOC conducted consistent with		v I	1			
				X	$\dashv$			
C45	- 01	Is documentation of the analyst's com		_ ^				
S15	OI		ion for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documentated, verified, and						
		validated, where applicable?	(000)	Х				
S16	OI	Laboratory standard operating pro		1				
ĺ	1	Are laboratory SOPs current and on f	ile for each method performed?	X				



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports							
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012							
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20871							
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VX1673							
ER# ¹	Description	on									
	For reporting	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method							
1	blank. The SDL is defined in the report as the MDL.										
	For reporting purposes, the method blank represents the unadjusted MQL. The DCS is on file in the laboratory and is not										
2	included in the laboratory data package.										
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and										
3		, ,	kage for analytes that are listed in the Texas F	ields of Accreditation.							
4		ies are discussed in the case narrative									
	1	, ,	or Method RSKSOP-147/175. The component	s reported are not listed or							
5	do not hav	e values in the Texas TRRP PCL table	es.								
l											

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



## GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

## Method Blank Summary Job Number: TC20871

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	<b>File ID</b> X0087062.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	<b>By</b> CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

### The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	99%	80-119%
460-00-4	4-Bromofluorobenzene	98%	72-126%



**Method:** SW846 8260B

## Blank Spike Summary Job Number: TC20871

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VX1673-BS	<b>File ID</b> X0087060.D	<b>DF</b>	<b>Analyzed</b> 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
17060-07-0 2037-26-5	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	101% 99% 101%	72-122% 68-124% 80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

## 6.3.1

Page 1 of 1

**Method:** SW846 8260B

### σ

## Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20871

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



## GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

## Method Blank Summary Job Number: TC20871

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-MB	File ID SS005026.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

## Blank Spike Summary Job Number: TC20871

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-BS	File ID SS005023.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	S _I ug	oike BSl g/l ug/		Limits
74-82-8	Methane	21	.5 21.	0 98	68-139
74-85-1	Ethene	57	7.4 54.	7 95	52-145
74-84-0	Ethane	43	3.3 56.	7 131	68-131
74-98-6	Propane	60	0.6 68.	2 113	69-131
75-28-5	Isobutane	72	2.5 77.	3 107	72-131
106-97-8	Butane	76	5.6 82.	4 108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

## **Matrix Spike Summary**

Job Number: TC20871

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1MS	SS005029.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* <del>6</del> 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

## **Duplicate Summary Job Number:** TC20871

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20871-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

<b>Accutest Laboratories Gulf Coast, Inc.</b>	Dec 12, 2012 13:11 pm				
Job Number:	TC20878				
Account:	EarthCon Consultants				
Project:	Quarterly	Well Sampling, Parker County, Texas			
Project Number:	3rd Quarter / WW6-Tho				
	Legend:	Hit			
Client Sample ID:		WW6-THO-120112			
Lab Sample ID:		TC20878-1			
Date Sampled:		12/01/2012			
Matrix:		Ground Water			
GC/MS Volatiles (SW846 8260B)					
Benzene	mg/l	0.00034 U			
Toluene	mg/l	0.00033 U			
Ethylbenzene	mg/l	0.00032 U			
Xylene (total)	mg/l	0.00087 U			
GC Volatiles (RSKSOP-147/175)					
Methane	mg/l	0.577			
Ethene	mg/l	0.00050 U			
Ethane	mg/l	0.0350			
Propane	mg/l	0.00075 U			
Isobutane	mg/l	0.00075 U			
Butane	mg/l	0.00075 U			



12/12/12



### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW6-Tho

Accutest Job Number: TC20878

Sampling Date: 12/01/12

### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rouriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

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## **Sample Summary**

EarthCon Consultants

Job No:

TC20878

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW6-Tho

Sample Collected Number Date Time B			Matrix Received Code Typ		<del></del>	Client
Number	Date	Time By	Received	Code	: Type	Sample ID
TC20878-1	12/01/12	15:15	12/04/12	AQ	Ground Water	WW6-THO-120112





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20878

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 10:34:08 A

1 Sample was collected on 12/01/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20878. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS233

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20879-1DUP, TC20970-2MS were used as the QC samples indicated.
- Matrix Spike Recovery for Methane is outside control limits. Outside control limits due to high level in sample relative to spike
- TC20970-2MS: Sample was not preserved to a pH < 2.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



# **Summary of Hits Job Number:** TC20878

Account: EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

12/01/12 **Collected:** 

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20878-1	WW6-THO-12011	2				
Methane Ethane		0.577 0.0350	0.0050 0.0010	0.0030 0.00050	mg/l	RSKSOP-147/175 RSKSOP-147/175





Sample Results
Report of Analysis



### 4

# **Report of Analysis**

Client Sample ID: WW6-THO-120112

 Lab Sample ID:
 TC20878-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
Run #1	X0087075.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	107% 97% 98% 99%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



# **Report of Analysis**

Client Sample ID: WW6-THO-120112

 Lab Sample ID:
 TC20878-1
 Date Sampled:
 12/01/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005059.D	1	12/07/12	LT	n/a	n/a	GSS233
Run #2	SS005060.D	10	12/07/12	LT	n/a	n/a	GSS233

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.577 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.0350	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form



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TC20878: Chain of Custody Page 1 of 4





### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20878	Client: EARTHCO	ON CONSUI	TANTS	Project:	3RD QTR WELI	L SAMPLI	NG,PAR	KER COUNTY,T
Date / Time Received: 12/4/2012	Delivery	Method:	Client	Airbill #'s:				_
No. Coolers: 1 Therm ID	: IR6			Temp Adjust	ment Factor:	0.2		
Cooler Temps (Initial/Adjusted): #1: (2.	<u>2/2.4)</u>							
Cooler Security Y or N		Y or I	Sample Integr	ity - Documer	ntation	<u>Y</u>	or N	<u>L</u>
1. Custody Seals Present:	3. COC Present:	<b>✓</b>	1. Sample label	ls present on bo	ttles:	<b>✓</b>		
2. Custody Seals Intact:   ✓   ✓	4. Smpl Dates/Time OK	✓ [	2. Container lab	eling complete:		<b>✓</b>		
Cooler Temperature Y or	<u>N_</u>		3. Sample conta	ainer label / CO	C agree:	<b>✓</b>		
1. Temp criteria achieved:			Sample Integ	rity - Conditio	n	<u>Y</u>	or N	<u>L</u>
Cooler temp verification:     Infared	Gun		Sample recvo		_	<b>✓</b>		
3. Cooler media: Ice (ba	ag)		· ·	s accounted for:		<b>✓</b>	Г	٦
Quality Control Preservation Y or	N N/A	WTB ST	3. Condition of	sample:			Intact	
1. Trip Blank present / cooler:		✓ □	Sample Integ	rity - Instructi	ons	Υ	or N	N/A
2. Trip Blank listed on COC:			-	uested is clear:		<u> </u>		
3. Samples preserved properly:			2. Bottles recei	ived for unspeci	ied tests		<u>✓</u>	
4. VOCs headspace free:	<b>v</b>		3. Sufficient vo	lume recvd for a	nalysis:	<b>✓</b>		
			<ol> <li>Compositing</li> </ol>	instructions cle	ar:			$\checkmark$
			5. Filtering inst	ructions clear:				$\checkmark$
Comments - Received trip blank not listed or								
- Received one of six vials with h	eadspace bigger than po	ea size.						

TC20878: Chain of Custody Page 2 of 4

Page 1 of 3







#### **Problem Resolution**

Accutest Job Number: TC20878

CSR: Elessa Sommers Response Date: 12/5/2012

**Response:** Trip blank is on separate report. Sufficient number of vials without headspace are available for the analyses requested.

TC20878: Chain of Custody Page 3 of 4







#### Sample Receipt Log

 Job #:
 TC20878
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20878-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20878-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20878-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20878-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20878-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20878-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20878: Chain of Custody

Page 4 of 4



#### **Laboratory Data Package Cover Page Appendix A**

This signature page, the laboratory review checklist, and the following reportable data:

Field chain-of-custody documentation;

TC20878 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

	R2	Sample identification cross-reference;	
Ģ	R3	Test reports (analytical data sheets) for	or each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
Ō	R4	Surrogate recovery data including:	
		a)	Calculated recovery (%R), and
			The laboratory's surrogate QC limits.
Ģ	R5	Test reports/summary forms for blank	samples;
Ģ	R6	Test reports/summary forms for labora	atory control samples (LCSs) including:
			LCS spiking amounts,
			Calculated %R for each analyte, and
			The laboratory's LCS QC limits.
	R7		atrix spike duplicates (MS/MSDs) including:
		•	Samples associated with the MS/MSD clearly identified,
			MS/MSD spiking amounts,
			Concentration of each MS/MSD analyte measured in the parent and
			Calculated %Rs and relative percent differences (RPDs), and
		•	The laboratory's MS/MSD QC limits
Ģ	R8	Laboratory analytical duplicate (if appl	
			The amount of analyte measured in the duplicate,
			The calculated RPD, and
			The laboratory's QC limits for analytical duplicates.
<u> </u>	R9		Ls) and detectability check sample results for each analyte for each
Ģ	R10	Other problems or anomalies.	
			item in Laboratory Review Checklist and for each analyte, matrix, and ditation under the Texas Laboratory Accreditation Program.
memod id	i which the i	laboratory does not note NELAC accred	dialion under the Texas Laboratory Accreditation Program.
Texas Lab the Excep requirement affirm to the	ooratory Acc tion Report. ents of the m ne best of m	reditation Program for all the methods, This data package has been reviewed tethods used, except where noted by the y knowledge, all problems/anomalies, o	laboratory data package. This laboratory is NELAC accredited under the analytes, and matrices reported in this data package except as noted in by the laboratory and is complete and technically compliant with the e laboratory in the attached exception reports. By my signature below, I observed by the laboratory as having the potential to affect the quality of tory Review Checklist, and no information or data have been knowingly
Check, if	applicable:	This laboratory meets an exception un	nder 30 TAC&25.6 and was last inspection by
[]	-	[X ] TCEQ or [ ] on April 20	11. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports herein	The official signing the cover page of the report in which these data are data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	L	ABORATORY REVIEW CHECKLIST: REPORTABLE	DAT	Ά			
Laboratory	/ Name:	Accutest Gulf Coast LRC Date:	12/	/12/2	012		
		Quarterly Well Sampling, Parker					
Project Na		County, Texas Laboratory Project Number:	1	2087	_		
Reviewer	Name:	Anita Patel Prep Batch Number(s):	GSS				
# ¹	A²	DESCRIPTION	YES	NO	NA°	NR*	ER #5
R1	OI	CHAIN-OF-CUSTODY (C-O-C):					
		Did samples meet the laboratory's standard conditions of sample acceptability	X				
		upon receipt?	X				<u> </u>
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) identification	- V				
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				<u> </u>
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were samples prepared and analyzed within holding times?  Other than those results <mql, all="" bracketed="" by="" calibration<="" other="" raw="" td="" values="" were=""><td>X</td><td></td><td></td><td></td><td><u> </u></td></mql,>	X				<u> </u>
		· · · · · · · · · · · · · · · · · · ·	Х				
		standards? Were calculations checked by a peer or supervisor?	X				<b>—</b>
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	l x				
		Were all results for soil and sediment samples reported on a dry weight basis?	+^		Х		
		Were % moisture (or solids) reported for all soil and sediment samples?	+		X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per	+				
		SW846 Method 5035?			Х		
		If required for the project, are TIC's reported?	1		Х		
R4	0	Surrogate recovery data					
		Were surrogates added prior to extraction?	Х				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	Х				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	Х				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including	l x				
		preparation and, if applicable, cleanup procedures?  Were blank concentrations <mql?< td=""><td><del>                    _     _     _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _</del></td><td></td><td></td><td></td><td><u> </u></td></mql?<>	<del>                    _     _     _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _</del>				<u> </u>
R6	OI	Laboratory control samples (LCS):	X	_		_	
- 10	01	Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and					
		cleanup steps?	Х				
		Were LCSs analyzed at required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to					_
		detect the COCs at the MDL used to calculate the SDLs?	X				5
		Was the LCSD RPD within QC limits?			Χ		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	Х				
		Were MS/MSD analyzed at the appropriate frequency?	Х				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC Limits?		Х			4
		Were the MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				<u> </u>
		Were analytical duplicates analyzed at the appropriate frequency?	X				<u> </u>
		Were RPDs or relative standard deviations within the laboratory QC limits?	X	_			
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?  Do the MQLs correspond to the concentration of the lowest non-zero calibration	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	+^-	Х			2
R10	OI	Other problems/anomalies					
1,10	"	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Х				
		Was applicable and available technology used to lower the SDL to minimize the	T X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation	<del>  ^</del>				
		Program for the analytes, matrices, and methods associated with this laboratory	X				3
		data package?					-
	•	•					



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/1	2/2012	2	
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC2	20878		
Reviewer		Anita Patel	Prep Batch Number(s):	1	33, VX	1673	
# ¹	I A ²	DESCRIPTION	i rop zaton ramzer(e).		NO NA		⁴ IFR#
 S1	OI	Initial calibration (ICAL)		120	110/11/		TEIX "
			e response factors for each analyte within QC		$\overline{}$	$\overline{}$	$\overline{}$
		limits?	response factors for each analyte minning	X			
		Were percent RSDs or correlation co	efficient criteria met?	X		+	<u> </u>
		·	mended in the method used for all analytes?	X			1
			ne lowest and highest standard used to			+	
		calculate the curve?	io ionost and ingriost standard dood to	X			
		Are ICAL data available for all instrum	nents used?	X		+	
			verified using an appropriate second source			+	1
		standard?	vormed doing air appropriate second source	X			
S2	OI		erification (ICCV AND CCV) and continuing				
	<u> </u>	Was the CCV analyzed at the method		Х	$\overline{}$	Т	т —
			alyte within the method-required QC limits?	X		+	+
		Was the ICAL curve verified for each	·	X	_	+	+
			e concentration in the inorganic CCB <mdl?< td=""><td><del>  ^  </del></td><td>X</td><td>+</td><td>-</td></mdl?<>	<del>  ^  </del>	X	+	-
S3	0	Mass spectral tuning	concentration in the morganic oobside:		^	_	_
	_ <del></del>	Was the appropriate compound for the	ne method used for tuning?	X	$\overline{}$	_	$\overline{}$
		Were ion abundance data within the	Ť	$\frac{\hat{x}}{x}$		-	-
S4	0	Internal standards (IS)	memou-required QC illinis:	_^_		_	
- 34			nes within the method-required QC limits?	X		$\overline{}$	_
S5	OI	Raw data (NELAC Section 5.5.10)	nes within the method-required QC innits:			_	_
	UI.		matograms, spectral data) reviewed by an			_	_
		analyst?	matograms, spectral data) reviewed by an	X			
		Were data associated with manual in	tegrations flagged on the raw data?	X		-	-
S6	0	Dual column confirmation	tegrations hagged on the raw data:	^			
		Did dual column confirmation results	most the method required OC2		Ιx	_	_
S7	0	Tentatively identified compounds (	<u>'</u>		^	_	
31			s spectra and TIC data subject to appropriate			$\overline{}$	_
		checks?	is specification for data subject to appropriate		X		
S8	<u> </u>	Interference Check Sample (ICS) re	oculto				
	<u> </u>	Were percent recoveries within metho			X	1	$\overline{}$
S9	<u> </u>		kes, and method of standard additions		^		
	<u>'</u>		, and the linearity within the QC limits			$\overline{}$	_
		specified in the method?	, and the inteatity within the QC infilts		X		
S10	OI	Method detection limit (MDL) studi	os .			-	
310	- 01	Was a MDL study performed for each		X	$\overline{}$	_	$\overline{}$
		Is the MDL either adjusted or support		$\frac{\hat{x}}{x}$		-	5
S11	OI	Proficiency test reports	ica by the analysis of Doos:	_^_		-	1 -
311	- 01		ceptable on the applicable proficiency tests or		$\overline{}$	_	$\overline{}$
		evaluation studies?	ceptable on the applicable proficiency tests of	X			
S12	OI	Standards documentation			_	-	_
- 012	- O.		s NIST-traceable or obtained from other			$\overline{}$	_
		appropriate source?	3 NIST-traceable of obtained from other	X			
S13	OI	Compound/analyte identification p	rocedures		_	-	_
313	- 01	Are the procedures for compound/ana		ΧI	$\overline{}$	_	$\overline{}$
S14	OI	Demonstration of analyst compete	•			_	_
	<del>  0</del>	Was DOC conducted consistent with		X			T
		Is documentation of the analyst's com		$\frac{1}{x}$	-+	+	+
S15	OI		ion for methods (NELAC Chapter 5)				
313			the data documentated, verified, and				
		validated, where applicable?	ine data documentated, verified, and	X			
S16	OI	Laboratory standard operating pro	pooduros (SORs)				
310	UI	Are laboratory SOPs current and on f		X			T
l	I	Inic iaboratory SOFS current and Off I	no for cacif method performed:	. ^ .	- 1	1	1



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012
Project Na		Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20878
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS233, VX1673
ER# ¹	Description	on	•	•
1	blank. The	ng purposes, the MQL is defined in the SDL is defined in the report as the M	DL.	•
2		ng purposes, the method blank repres n the laboratory data package.	sents the unadjusted MQL. The DCS	is on file in the laboratory and is no
3	1	atory is NELAC-accredited under the T ssociated with this laboratory data page	,	• • • • • • • • • • • • • • • • • • • •
4		ies are discussed in the case narrative	••	
5	1	atory does not perform DCS analysis for e values in the Texas TRRP PCL tabl		components reported are not listed o
		<u> </u>	<u> </u>	<u> </u>
	-			

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





# GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20878

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	<b>File ID</b> X0087062.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	<b>By</b> CF	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch VX1673

### The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No. Surrogate Recoveries		Limits	
1868-53-7 Dibromofluoromethane	105%	72-122%	
17060-07-0 1,2-Dichloroethane-D4	95%	68-124%	
2037-26-5 Toluene-D8	99%	80-119%	
460-00-4 4-Bromofluorobenzene	98%	72-126%	



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20878

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
VX1673-BS	X0087060.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	72-122%
17060-07-0	1,2-Dichloroethane-D4	99%	68-124%
2037-26-5	Toluene-D8	101%	80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20878

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%



^{* =} Outside of Control Limits.



# GC Volatiles

# QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20878

Job Number:

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample GSS233-MB	<b>File ID</b> SS005056.D	<b>DF</b> 1	<b>Analyzed</b> 12/07/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20878

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
GSS233-BS	SS005054.D	1	12/07/12	LT	n/a	n/a	GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	16.2	75	68-139
74-85-1	Ethene	57.4	43.2	75	52-145
74-84-0	Ethane	43.3	47.1	109	68-131
74-98-6	Propane	60.6	60.5	100	69-131
75-28-5	Isobutane	72.5	70.4	97	72-131
106-97-8	Butane	76.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Matrix Spike Summary**

Job Number: TC20878

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC20970-2MS ^a TC20970-2 ^a	<b>File ID</b> SS005067.D SS005066.D	<b>Analyzed</b> 12/07/12 12/07/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS233 GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20970-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	105	21.5	95.8	-42* b	68-139
74-85-1	Ethene	ND	57.4	46.6	81	52-145
74-84-0	Ethane	4.71	43.3	46.7	97	68-131
74-98-6	Propane	ND	60.6	53.4	88	69-131
75-28-5	Isobutane	ND	72.5	61.8	85	72-131
106-97-8	Butane	ND	76.6	66.0	86	66-128

⁽a) Sample was not preserved to a pH < 2.



⁽b) Outside control limits due to high level in sample relative to spike amount.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20878

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20879-1DUP	SS005062.D	12/07/12	LT	n/a	n/a	GSS233
TC20879-1	SS005061.D	12/07/12	LT	n/a	n/a	GSS233

The QC reported here applies to the following samples:

CAS No.	Compound	TC20879-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	4.10	3.34	20	53
74-85-1	Ethene	1.0 U	ND	nc	27
74-84-0	Ethane	1.0 U	ND	nc	43
74-98-6	Propane	1.5 U	ND	nc	21
75-28-5	Isobutane	1.5 U	ND	nc	35
106-97-8	Butane	1.5 U	ND	nc	33



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:13 pm
Job Number:	TC20890	
Account:	EarthCor	Consultants
Project:	Quarterly	Well Sampling, Parker County, Texas
Project Number:	3rd Quar	ter / WW2-Pur
	Legend:	Hit
Client Sample ID:		WW2-PUR-113012
Lab Sample ID:		TC20890-1
Date Sampled:		11/30/2012
Matrix:		Ground Water
GC/MS Volatiles (SW846 8260B)		
	1	
Benzene	mg/l	0.00070 J
Toluene	mg/l	0.00033 U
Ethylbenzene	mg/l	0.00032 U
Xylene (total)	mg/l	0.00087 U
GC Volatiles (RSKSOP-147/175)		
	1	
Methane	mg/l	20.1
Ethene	mg/l	0.00050 U
Ethane	mg/l	3.5
Propane	mg/l	0.0668
Isobutane	mg/l	0.00841
Butane	mg/l	0.0103



12/12/12



### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW2-Pur

Accutest Job Number: TC20890

Sampling Date: 11/30/12

#### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Laboratory Director

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# **Sample Summary**

EarthCon Consultants

Job No:

TC20890

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW2-Pur

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
TC20890-1	11/30/12	15:25	12/04/12	AQ	Ground Water	WW2-PUR-113012
TC20890-1D	11/30/12	15:25	12/04/12	AQ	Water Dup/MSD	WW2-PUR-113012 MSD
TC20890-1S	11/30/12	15:25	12/04/12	AQ	Water Matrix Spike	WW2-PUR-113012 MS





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20890

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:12:02 P

1 Sample was collected on 11/30/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20890. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VK579

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1MS, TC20890-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20890

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 11/30/12**Project:** 

**Collected:** 

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20890-1	WW2-PUR-11301	2				
Benzene		0.00070 J	0.0010	0.00034	mg/l	SW846 8260B
Methane		20.1	0.13	0.075	mg/l	RSKSOP-147/175
Ethane		3.5	0.25	0.13	mg/l	RSKSOP-147/175
Propane		0.0668	0.0015	0.00075	mg/l	RSKSOP-147/175
Isobutane		0.00841	0.0015	0.00075	mg/l	RSKSOP-147/175
Butane		0.0103	0.0015	0.00075	mg/l	RSKSOP-147/175



Sample Results	
Report of Analysis	



# **Report of Analysis**

Client Sample ID: WW2-PUR-113012

 Lab Sample ID:
 TC20890-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>	
Run #1	K13205.D	1	12/07/12	EM	n/a	n/a	VK579	
Run #2								

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00070 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	109% 111% 105% 102%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



# **Report of Analysis**

Client Sample ID: WW2-PUR-113012

 Lab Sample ID:
 TC20890-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	20.1 a	0.13	0.075	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	3.5 a	0.25	0.13	mg/l	
74-98-6	Propane	0.0668	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00841	0.0015	0.00075	mg/l	
106-97-8	Butane	0.0103	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- · Chain of Custody
- LRC Form



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Accutest Semple #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	딛	ZANBO	HNO3	HZSO4	DI Wate	MEOH	TSP	ENCOR	OTHER	BIEX	butane, Emane, Emene, Isobutane, Metitalie, Propane by RSK-175										LAB USE ONLY
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TC20890: Chain of Custody Page 1 of 4







### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20890	Client: EARTHCON	CONSULTANTS	Project:	3RD QTR WELL	SAMPLIN	MPLING,PARKER COUNTY,T							
Date / Time Received: 12/4/2012	Delivery Me	ethod: Clien	Airbill #'s:										
No. Coolers: 1 Therm ID:	IR6		Temp Adjus	tment Factor:	0.2								
Cooler Temps (Initial/Adjusted): #1: (2.2	/2.4)			_									
Cooler Security Y or N			ole Integrity - Docume	<u>ntation</u>	<u>Y</u>	or N							
1. Custody Seals Present:	3. COC Present:	<b>☑</b> □ 1. Sa	mple labels present on bo	ottles:	$\checkmark$								
2. Custody Seals Intact:   ✓ 4.	. Smpl Dates/Time OK	<b>☑</b> □ 2. Co	ntainer labeling complete	:	$\checkmark$								
Cooler Temperature Y or N	<u>L</u>	3. Sa	mple container label / CC	C agree:	$\checkmark$								
1. Temp criteria achieved: ✓		Sam	ple Integrity - Condition	on	<u>Y</u>	or N							
Cooler temp verification: Infared G	Gun	· · · · · · · · · · · · · · · · · · ·	mple recvd within HT:	_	<b>✓</b>								
3. Cooler media: Ice (bag	g)		containers accounted for	:	<b>~</b>								
Quality Control Preservation Y or I	N N/A W		endition of sample:			ntact							
1. Trip Blank present / cooler:		✓ □ Sam	ple Integrity - Instruct	ions	Υ	or N	N/A						
2. Trip Blank listed on COC:			nalysis requested is clear		<u> </u>								
3. Samples preserved properly: ✓ □			ottles received for unspec			✓							
4. VOCs headspace free: ✓		3. S	ufficient volume recvd for	analysis:	<b>✓</b>								
		4. C	ompositing instructions cl	ear:			<b>V</b>						
		5. F	Itering instructions clear:				<b>✓</b>						
Comments -Received trip blank not listed on 0	COC.												

TC20890: Chain of Custody

Page 1 of 3

Page 2 of 4







#### **Problem Resolution**

Accutest Job Number: TC20890

**CSR**: Elessa Sommers Response Date: 12/5/2012

Response: Trip blank is on separate report.

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TC20890: Chain of Custody

Page 3 of 4









#### Sample Receipt Log

 Job #:
 TC20890
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20890-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	11	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	12	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	13	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	14	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	15	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	16	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	17	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20890-1	40ml	18	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4

TC20890: Chain of Custody

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#### Laboratory Data Package Cover Page Appendix A

This signature page, the laboratory review checklist, and the following reportable data:

TC20890 This data package consists of

QA Manager Name (Printed)

Richard Rodriguez

Signature

ė	R1	Field chain-of-custody docum	nentation;
į.	R2	Sample identification cross-re	
D	R3	Test reports (analytical data s	sheets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data inclu	uding:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms	for blank samples;
	R6	Test reports/summary forms	for laboratory control samples (LCSs) including:
		a)	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
	R7	Test reports for project matrix	spike/matrix spike duplicates (MS/MSDs) including:
		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
	R8	Laboratory analytical duplicat	te (if applicable) recovery and precision:
		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
	R9	List of method quantitation lin	nits (MQLs) and detectability check sample results for each analyte for each
	R10	Other problems or anomalies	
			ed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and
method fo	or which the	laboratory does not hold NELA	C accreditation under the Texas Laboratory Accreditation Program.
Release	Statement:	I am responsible for the release	se of this laboratory data package. This laboratory is NELAC accredited under the
Texas Lal	boratory Ac	creditation Program for all the m	nethods, analytes, and matrices reported in this data package except as noted in
the Excep	tion Report	. This data package has been r	eviewed by the laboratory and is complete and technically compliant with the
requireme	ents of the r	nethods used, except where no	ted by the laboratory in the attached exception reports. By my signature below, I
affirm to th	he best of n	ny knowledge, all problems/ano	malies, observed by the laboratory as having the potential to affect the quality of
the data, I	have been i	dentified by the laboratory in the	e Laboratory Review Checklist, and no information or data have been knowingly
withheld.			
	applicable	: This laboratory meets an exc	eption under 30 TAC&25.6 and was last inspection by
[]		[X]TCEQ or [] or	April 2011. Any findings affecting the data in this laboratory data package are
		noted in the Exception Repor	ts herein. The official signing the cover page of the report in which these data are
		used is responsible for releas	sing this data package and is by signature affirming the above release statement

Official Title (printed)

Laboratory Director

Date 12/12/2012



	J	ABORATORY REVIEW	HECKLIST: REPORTABLE	DΔT	Δ.						
Laboratory		Accutest Gulf Coast	LRC Date:	12/12/2012							
Laboratory	ivaille.	Quarterly Well Sampling, Parker		12	12/2	012					
Project Na	me.	County, Texas	Laboratory Project Number:	тс	2089	90					
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VK579							
#1	A ²	DESCRIPTION	Trop Bator Hambor(o).					ER#5			
R1	OI	CHAIN-OF-CUSTODY (C-O-C):		120							
	<u> </u>		andard conditions of sample acceptability		Π		Ι	I			
		upon receipt?	X								
		Were all departures from standard co	X								
R2	OI	Sample and quality control (QC) id									
			s-referenced to the laboratory ID numbers?	Х	П		П	l .			
		·	eferenced to the corresponding QC data?	X							
R3	OI	Test reports	ordinate to the corresponding &c data.	<b> </b>							
	<u> </u>	Were samples prepared and analyze	d within holding times?	Х							
			all other raw values bracketed by calibration								
		standards?	an one ran raided bracketed by cambraner.	X							
		Were calculations checked by a peer	X								
		Were all analyte identifications check		X							
		Were sample detection limits reporte		X							
			Were all results for soil and sediment samples reported on a dry weight basis?								
		Were % moisture (or solids) reported				X					
			platile analysis extracted with methanol per			V					
		SW846 Method 5035?			Х						
		If required for the project, are TIC's re	eported?			Х					
R4	0	Surrogate recovery data									
		Were surrogates added prior to extra		X							
		Were surrogate percent recoveries in	X								
R5	OI	Test reports/summary forms for bl									
		Were appropriate type(s) of blanks a	X								
		Were blanks analyzed at the appropr		X							
	Were method blanks taken through the entire analytical process, including										
		preparation and, if applicable, cleanu	p procedures?	- V							
		Were blank concentrations <mql?< td=""><td>X</td><td></td><td></td><td></td><td></td></mql?<>	X								
R6	OI	Laboratory control samples (LCS)		V	_						
		Were all COCs included in the LCS?	tire analytical procedure, including prep and	X							
		cleanup steps?	tire arranytical procedure, including prep and	X							
		Were LCSs analyzed at required free	Tuency?	X							
			%Rs within the laboratory QC limits?	^							
			data document the laboratory's capability to								
		detect the COCs at the MDL used to		X			l	5			
		Was the LCSD RPD within QC limits		1		Х	<del>                                     </del>	l			
R7	OI	Matrix spike (MS) and matrix spike				Ĥ					
l	<u> </u>		nalytes included in the MS and MSD?	Х	I			l			
		Were MS/MSD analyzed at the appro		X							
		Were MS (and MSD, if applicable) %		1	Х			4			
		Were the MS/MSD RPDs within labo		X							
R8	OI	Analytical duplicate data									
		Were appropriate analytical duplicate	es analyzed for each matrix?	Х							
		Were analytical duplicates analyzed		X							
			ations within the laboratory QC limits?		Х			4			
R9	OI	Method quantitation limits (MQLs)	:								
		Are the MQLs for each method analy	te included in the laboratory data package?	Х							
		Do the MQLs correspond to the conc	entration of the lowest non-zero calibration	Х							
			luded in the laboratory data package?		Х			2			
R10	OI	Other problems/anomalies									
		· · · · · · · · · · · · · · · · · · ·	pecial conditions noted in this LRC and ER?	Х							
			logy used to lower the SDL to minimize the	Х							
		Is the laboratory NELAC-accredited u	under the Texas Laboratory Accreditation								
			nd methods associated with this laboratory	X			l	3			
		data package?									



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012			
Project Na		Quarterly Well Sampling, Parker	TC2	0890			
Reviewer		Anita Patel	Prep Batch Number(s):		32, VK5	79	
#1	A ²	DESCRIPTION	i top Baton Hamber(e).			NR ⁴ ER # ⁵	
S1	OI	Initial calibration (ICAL)		1201	10 1111		
	<u> </u>		e response factors for each analyte within QC		Т		
		limits?	response factors for each analyte main Qu	X			
		Were percent RSDs or correlation co	efficient criteria met?	X			
			mended in the method used for all analytes?	X			
			e lowest and highest standard used to			1 1	
		calculate the curve?	X				
	Are ICAL data available for all instruments used?						
		Has the initial calibration curve been	verified using an appropriate second source				
	standard?			X			
S2	OI		erification (ICCV AND CCV) and continuing				
		Was the CCV analyzed at the method		Х			
			alyte within the method-required QC limits?	X		1 1	
	Was the ICAL curve verified for each analyte?		·	X			
			e concentration in the inorganic CCB <mdl?< td=""><td></td><td>X</td><td></td></mdl?<>		X		
S3	0	Mass spectral tuning					
	Was the appropriate compound for the method used for tuning?			Х	$\overline{}$		
	Were ion abundance data within the method-required QC limits?					1 1	
S4	0	Internal standards (IS)	X				
		` '	nes within the method-required QC limits?	Х	$\overline{}$		
S5					_		
			matograms, spectral data) reviewed by an		$\overline{}$	П	
		analyst?	mategrame, opeonal data/ reviewed by air	X			
		Were data associated with manual in	tegrations flagged on the raw data?	X			
S6	0	Dual column confirmation					
	Ť	Did dual column confirmation results	meet the method-required QC?		ΙX		
S7	0	Tentatively identified compounds (	<u>'</u>		-		
<del>-</del>			s spectra and TIC data subject to appropriate	Т	Т		
		checks?			X		
S8	ı	Interference Check Sample (ICS) re	esults				
		Were percent recoveries within metho			Ιx		
S9	ı		kes, and method of standard additions				
		Were percent differences, recoveries.		П			
		specified in the method?	, ,		Х		
S10	OI	Method detection limit (MDL) studi	es				
		Was a MDL study performed for each		ΧI		l l	
		Is the MDL either adjusted or support		X		5	
S11	OI	Proficiency test reports	, ,				
			ceptable on the applicable proficiency tests or	V			
		evaluation studies?	,	X			
S12	OI	Standards documentation					
		Are all standards used in the analyse	s NIST-traceable or obtained from other	V. I			
		appropriate source?		X			
S13	71 1						
		Are the procedures for compound/ana		ΧI			
S14	OI	Demonstration of analyst compete	,				
		Was DOC conducted consistent with		Х			
		Is documentation of the analyst's com		X			
S15	OI		ion for methods (NELAC Chapter 5)				
	T -		the data documentated, verified, and	ι. Ι	T		
		validated, where applicable?		X			
S16	OI	Laboratory standard operating pro	cedures (SOPs)				
	T	Are laboratory SOPs current and on f		Х			
		, ,					



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20890						
Reviewer Name: Anita Patel		Anita Patel	Prep Batch Number(s):	GSS232, VK579						
ER# ¹	Description	n								
	For reporting	ng purposes, the MQL is defined in the	e report as the RL. The unadjusted MQL/RL is	reported in the method						
1	blank. The	SDL is defined in the report as the MI	DL.							
	For reporting	ng purposes, the method blank repres	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not						
2	included in	the laboratory data package.								
	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and									
3	methods as	ssociated with this laboratory data pac	kage for analytes that are listed in the Texas F	ields of Accreditation.						
4	All anomali	es are discussed in the case narrative	<b>9.</b>							
	The labora	tory does not perform DCS analysis for	or Method RSKSOP-147/175. The component	s reported are not listed or						
5	do not have	e values in the Texas TRRP PCL table	es.							

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on





### GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20890

Job Number:

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
VK579-MB	K13204.D	1	12/07/12	EM	n/a	n/a	VK579

#### The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	110%	72-122%
17060-07-0	1,2-Dichloroethane-D4	107%	68-124%
2037-26-5	Toluene-D8	106%	80-119%
460-00-4	4-Bromofluorobenzene	100%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20890

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VK579-BS	K13202.D	1	12/07/12	EM	n/a	n/a	VK579

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	23.8	95	68-119
100-41-4	Ethylbenzene	25	24.0	96	71-117
108-88-3	Toluene	25	24.1	96	73-119
1330-20-7	Xylene (total)	75	74.5	99	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
17060-07-0	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8	107% 105% 105%	72-122% 68-124% 80-119%
460-00-4	4-Bromofluorobenzene	100%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

## Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20890

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC20890-1MS TC20890-1MSD TC20890-1	<b>File ID</b> K13206.D K13207.D K13205.D	<b>DF</b> 1 1 1	Analyzed 12/07/12 12/07/12 12/07/12	By EM EM EM	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch VK579 VK579 VK579

The QC reported here applies to the following samples:

CAS No.	Compound	TC2089 ug/l	00-1 Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	0.70	J	25	24.7	96	24.2	94	2	68-119/12
100-41-4	Ethylbenzene	1.0 U		25	23.0	92	22.7	91	1	71-117/12
108-88-3	Toluene	1.0 U		25	23.2	93	22.6	90	3	73-119/13
1330-20-7	Xylene (total)	3.0 U		75	71.5	95	71.1	95	1	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20890-1	Limits
1868-53-7	Dibromofluoromethane	111%	110%	109%	72-122%
17060-07-0	1,2-Dichloroethane-D4	110%	110%	111%	68-124%
2037-26-5	Toluene-D8	105%	106%	105%	80-119%
460-00-4	4-Bromofluorobenzene	103%	102%	102%	72-126%



^{* =} Outside of Control Limits.



### GC Volatiles

## QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20890

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample GSS232-MB	File ID SS005026.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20890

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-BS	File ID SS005023.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound		Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	2	21.5	21.0	98	68-139
74-85-1	Ethene	4	57.4	54.7	95	52-145
74-84-0	Ethane	4	43.3	56.7	131	68-131
74-98-6	Propane	(	60.6	68.2	113	69-131
75-28-5	Isobutane	7	72.5	77.3	107	72-131
106-97-8	Butane	<b>2</b>	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

### **Matrix Spike Summary**

Job Number: TC20890

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample TC20890-1MS TC20890-1 TC20890-1	File ID SS005029.D SS005027.D SS005030.D	1	Analyzed 12/06/12 12/06/12 12/06/12	By LT LT LT	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch GSS232 GSS232 GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* <del>6</del> 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20890

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20890-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laboratories Gulf Coast, Inc.		Dec 12, 2012 13:08 pm	
Job Number:	TC20872		
Account:	EarthCor	n Consultants	
Project:	Quarterly	Well Sampling, Parker County, Texas	
Project Number:	3rd Quar	ter / WW1-Wel	
	Legend:	Hit	
Client Sample ID:		WW1-WEL-113012	
Lab Sample ID:		TC20872-1	
Date Sampled:		11/30/2012	
Matrix:		Ground Water	
GC/MS Volatiles (SW846 8260B)			
Benzene	mg/l	0.00034 U	
Toluene	mg/l	0.00033 U	
Ethylbenzene	mg/l	0.00032 U	
Xylene (total)	mg/l	0.00087 U	
GC Volatiles (RSKSOP-147/175)			
	1		
Methane	mg/l	2.12	
Ethene	mg/l	0.00050 U	
Ethane	mg/l	0.234	
Propane	mg/l	0.00075 U	
Isobutane	mg/l	0.00075 U	
Butane	mg/l	0.00075 U	



12/12/12



### Technical Report for

EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas

3rd Quarter / WW1-Wel

Accutest Job Number: TC20872

Sampling Date: 11/30/12

#### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420 Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rollriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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## **Sample Summary**

EarthCon Consultants

Job No: TC20872

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / WW1-Wel

Sample	Collected			Matrix		Client
Number	Date	Time By	Received	Code	Type	Sample ID
TC20872-1	11/30/12	08:40	12/04/12	AQ	Ground Water	WW1-WEL-113012





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20872

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:07:19 P

1 Sample was collected on 11/30/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. The sample received an Accutest job number of TC20872. A listing of the Laboratory Sample ID, Client Sample ID and date of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AQ Batch ID: VX1673

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20864-1MS, TC20864-1MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



# **Summary of Hits Job Number:** TC20872

Account: EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas 11/30/12**Project:** 

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method		
TC20872-1	WW1-WEL-113012							
Methane Ethane		2.12 0.234	0.0050 0.0010	0.0030 0.00050	mg/l mg/l	RSKSOP-147/175 RSKSOP-147/175		





Sample Results	
Report of Analysis	



### **Report of Analysis**

Client Sample ID: WW1-WEL-113012

 Lab Sample ID:
 TC20872-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	Analytical Batch
Run #1	X0087069.D	1	12/06/12	CF	n/a	n/a	VX1673
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	105% 97% 100% 98%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



#### 4

### **Report of Analysis**

Client Sample ID: WW1-WEL-113012

 Lab Sample ID:
 TC20872-1
 Date Sampled:
 11/30/12

 Matrix:
 AQ - Ground Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	Analytical Batch
Run #1	SS005035.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2	SS005037.D	10	12/06/12	LT	n/a	n/a	GSS232

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	2.12 a	0.0050	0.0030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.234	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected

SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- · Chain of Custody
- LRC Form



#### OF CUSTODY

	<b>CHAIN</b>	(
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			TEL. 71	13-271-47	700 FAX	: 713-	271-47	770						Accutes	st Quote	#				Accutes	t Job #	Ó	0.0	$\overline{C}$
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1 Day EMERGENCY		<u> </u>				C	ommer	rcial "A'	" = Re	sults (	Only													
Emergency & Rush T/A data available VIA Lablink	. 097	2 P				C	ommer	rcial "B'	" = Re	sults +	QC:	Summ	агу											
17-9	-12 Sai	nple Custody m	ust be docum	ented b	elow each	C:	ommer	rcial "C	" = Re	sults -	+ QC	& Sun	ogate	Summ	nary					OK LOWED				
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elinquished by: Date Time:		3			#		- 4	4								· '				4	Ly:			
Date Time:		Received By:					ļ	Custody	Seal	1				itact		Preserve	1 where	applicat	ole			On Ice	Co	ooler Temp.

TC20872: Chain of Custody Page 1 of 4





#### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC208	372	Client:	EARTHCON C	CONSULTAI	NTS	Project:	3RD QTR WEL	L SAMPLI	NG,PAR	KER COUNTY,T
Date / Time Received: 12/4/2	012		Delivery Meth	nod:	Client	Airbill #'s:				
No. Coolers: 1	Therm ID:	IR6				Temp Adjus	tment Factor:	0.2		
Cooler Temps (Initial/Adjusted	d): #1: (2.2	2/2.4)								
Cooler Security Y	or N			Y or N	Sample Integ	grity - Docume	ntation_	Υ	or N	_
1. Custody Seals Present:		3. COC Pr	resent:		1. Sample lab	els present on bo	ottles:	<b>✓</b>		
2. Custody Seals Intact:	□ 4	. Smpl Date:	s/Time OK			abeling complete		<b>✓</b>		
Cooler Temperature	Y or N	<u>1_</u>			3. Sample cor	ntainer label / CO	C agree:	<b>✓</b>		
Temp criteria achieved:	<b>V</b>				Sample Inte	grity - Condition	on	<u>Y</u>	or N	_
Cooler temp verification:	Infared C	Gun			1. Sample rec		<del></del> -	<b>✓</b>		
Cooler media:	Ice (ba	g)				ers accounted for:		<b>✓</b>		
Quality Control Preservation	Y or	N N/A	WT	гв STВ	3. Condition o	f sample:			Intact	<u> </u>
1. Trip Blank present / cooler:	<b>v</b>		<b>✓</b>		Sample Inte	grity - Instruct	ions	Υ	or N	N/A
2. Trip Blank listed on COC:						equested is clear:		<u> </u>		
3. Samples preserved properly:	<b>v</b>				2. Bottles rec	eived for unspec	ified tests		✓	
4. VOCs headspace free:	<b>v</b>				3. Sufficient v	olume recvd for	analysis:	<b>v</b>		
					<ol><li>Compositir</li></ol>	ng instructions cle	ear:			$\checkmark$
					5. Filtering in	structions clear:				$\checkmark$
Comments -Received trip blank	not listed on	COC.								

TC20872: Chain of Custody Page 2 of 4

Page 1 of 3







#### **Problem Resolution**

Accutest Job Number: TC20872

CSR: Elessa Sommers Response Date: 12/4/2012

Response: Trip blank is on separate report.

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TC20872: Chain of Custody Page 3 of 4







#### Sample Receipt Log

 Job #:
 TC20872
 Date / Time Received:
 12/4/2012 9:22:00 AM
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20872-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20872-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20872-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20872-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20872-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20872-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument	IR6	2.2	0.2	2.4

TC20872: Chain of Custody

Page 4 of 4



## Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC20872 This data package consists of

[]

Richard Rodriguez

Ļ	RT	Field chain-of-custody documenta	ation;	
	R2	Sample identification cross-refere	nce;	
	R3	Test reports (analytical data sheet	ts) for each environmental sampl	e that includes:
		a)	Items consistent with NELAC	C 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,	
		c)	preparation methods,	
		d)	cleanup methods, and	
		e)	if required for the project, ter	ntatively identified compounds (TICs).
	R4	Surrogate recovery data including	<b>)</b> :	,
		a)	Calculated recovery (%R), a	ind
		b)	The laboratory's surrogate C	QC limits.
	R5	Test reports/summary forms for bl	lank samples;	
	R6	Test reports/summary forms for la	aboratory control samples (LCSs)	including:
•		a)	LCS spiking amounts,	•
		b)	Calculated %R for each ana	lyte, and
		c)	The laboratory's LCS QC lin	•
	R7	Test reports for project matrix spik	-	
•		a)	Samples associated with the	, ,
		b)	MS/MSD spiking amounts,	,
		c)		ISD analyte measured in the parent and
		ď)		e percent differences (RPDs), and
		e)	The laboratory's MS/MSD Q	
į.	R8	Laboratory analytical duplicate (if	-	
•		a)	The amount of analyte meas	
		b)	The calculated RPD, and	,
		c)	The laboratory's QC limits for	or analytical duplicates.
į.	R9	List of method quantitation limits (	-	ample results for each analyte for each
	R10	Other problems or anomalies.	,	
•		, , , , , , , , , , , , , , , , , , , ,		
The Exce	ption Report	for each "No" or "Not Reviewed (N	R)" item in Laboratory Review C	hecklist and for each analyte, matrix, and
		laboratory does not hold NELAC ac		
		,		,
				nis laboratory is NELAC accredited under the
				ted in this data package except as noted in
the Excep	tion Report.	This data package has been review	wed by the laboratory and is com	plete and technically compliant with the
				exception reports. By my signature below, I
affirm to the	ne best of m	y knowledge, all problems/anomalie	es, observed by the laboratory as	s having the potential to affect the quality of
the data, I	nave been id	lentified by the laboratory in the Lat	boratory Review Checklist, and r	o information or data have been knowingly
withheld.				
Chook if	annliaahla	This laboratory meets an exception	on under 30 TAC 825 6 and was I	act increation by
[]	аррисавіе.			
[]				e data in this laboratory data package are
				er page of the report in which these data are
			this data package and is by signa	ature affirming the above release statement
		is true.		
QA Mana	_			
Name (Pr	inted)	Signature	Official Title (printed)	Date

Laboratory Director

Date 12/12/2012



	ı	ABORATORY REVIEW	HECKLIST: REPORTABLE	DΔΤ	Δ					
Laboratory		Accutest Gulf Coast	LRC Date:	12/12/2012						
Laboratory	ivanio.	Quarterly Well Sampling, Parker		<u> </u>						
Project Na	me:	County, Texas	Laboratory Project Number:	тс	2087	72				
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	_		VX16	373			
#1	A ²	DESCRIPTION	Trop Edicit Hambor(o).					ER #5		
R1	OI	CHAIN-OF-CUSTODY (C-O-C):								
			andard conditions of sample acceptability							
		upon receipt?	, , ,	X						
		Were all departures from standard co	onditions described in an exception report?	Х						
R2	OI	Sample and quality control (QC) id	lentification							
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х						
		Are all laboratory ID numbers cross-r	eferenced to the corresponding QC data?	Х						
R3	OI	Test reports								
		Were samples prepared and analyze	Х							
			her than those results <mql, all="" bracketed="" by="" calibrat<="" other="" raw="" td="" values="" were=""></mql,>							
		standards?	· · · · · · · · · · · · · · · · · · ·							
		Were calculations checked by a peer	Х							
		Were all analyte identifications check	ked by a peer or supervisor?	Х						
		Were sample detection limits reporte		Х						
			t samples reported on a dry weight basis?			Х				
		Were % moisture (or solids) reported				Х				
			platile analysis extracted with methanol per			х				
		SW846 Method 5035?	. 10	-						
		If required for the project, are TIC's re	eported?			Х				
R4	0	Surrogate recovery data	-4	V		_				
		Were surrogates added prior to extra	all samples within the laboratory QC limits?	X						
R5	OI	Test reports/summary forms for bl	· · · · · · · · · · · · · · · · · · ·	<del>  ^</del>						
- 67	0	Were appropriate type(s) of blanks a		Х						
		Were blanks analyzed at the appropri	· ·	X						
		Were method blanks taken through the								
		preparation and, if applicable, cleanu		X						
		Were blank concentrations <mql?< td=""><td>p procedures.</td><td>l x</td><td></td><td></td><td></td><td></td></mql?<>	p procedures.	l x						
R6	OI	Laboratory control samples (LCS)	:							
		Were all COCs included in the LCS?		Х				l .		
		Was each LCS taken through the ent	tire analytical procedure, including prep and							
		cleanup steps?		X						
		Were LCSs analyzed at required free	quency?	Х						
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х						
			data document the laboratory's capability to	X				5		
		detect the COCs at the MDL used to		^				Ů		
		Was the LCSD RPD within QC limits				X				
R7	OI	Matrix spike (MS) and matrix spike		V						
			nalytes included in the MS and MSD?	X		<u> </u>	-			
		Were MS/MSD analyzed at the approver Were MS (and MSD, if applicable) %		X	X	<u> </u>	<u> </u>	4		
		Were the MS/MSD RPDs within labor		X	<del>  ^</del>		<del>                                     </del>	-		
R8	OI	Analytical duplicate data	ratory see minus:	<u> </u>						
	- 01	Were appropriate analytical duplicate	es analyzed for each matrix?	X						
		Were analytical duplicates analyzed	,	l x	$\vdash$	<b>-</b>	<del>                                     </del>			
			ations within the laboratory QC limits?	+^	Х			4		
R9	OI	Method quantitation limits (MQLs):	·		Ĥ			_		
···•	<u> </u>		te included in the laboratory data package?	Х				I		
			entration of the lowest non-zero calibration	X						
		· · · · · · · · · · · · · · · · · · ·	luded in the laboratory data package?		Х			2		
R10	OI	Other problems/anomalies	, ,							
		Are all known problems/anomalies/sp	pecial conditions noted in this LRC and ER?	Х						
		Was applicable and available techno	logy used to lower the SDL to minimize the	Х						
			under the Texas Laboratory Accreditation							
		Program for the analytes, matrices, a	nd methods associated with this laboratory	X			l	3		
		data package?		<u></u>	L	L_	L_	<u> </u>		



Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC	2087	'2		
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS	232,	VX16	73	
#1	A ²	DESCRIPTION		YES	NO	$NA^3$	NR⁴	ER#5
S1	OI	Initial calibration (ICAL)						
		· ·	e response factors for each analyte within QC	x				
		limits?						
		Were percent RSDs or correlation co		Х				
			mended in the method used for all analytes?	Х				
			ne lowest and highest standard used to	х				
		calculate the curve?	ponto upod?					
		Are ICAL data available for all instrum	verified using an appropriate second source	Х				
		standard?	verified using an appropriate second source	Х				
S2	OI		erification (ICCV AND CCV) and continuing					
- 32	01	Was the CCV analyzed at the method		Х				
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each		X				
		Was the absolute value of the analyte			Х			
S3	0	Mass spectral tuning						
		Was the appropriate compound for th	ne method used for tuning?	Х				
		Were ion abundance data within the	method-required QC limits?	Х				
S4	0	Internal standards (IS)	•					
		Were IS area counts and retention tin	nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)						
		Were the raw data (for example, chro	matograms, spectral data) reviewed by an	х				
		analyst?						
		Were data associated with manual in	Χ					
S6	0	Dual column confirmation					_	
		Did dual column confirmation results				Χ		
S7	0	Tentatively identified compounds (						
		checks?	s spectra and TIC data subject to appropriate			Χ		
S8	1	Interference Check Sample (ICS) r	osults					
	'	Were percent recoveries within metho				Х		
S9	1		kes, and method of standard additions					
			, and the linearity within the QC limits					
		specified in the method?	,			Х		
S10	OI	Method detection limit (MDL) studi	es					
		Was a MDL study performed for each	reported analyte?	Х				
		Is the MDL either adjusted or support	ed by the analysis of DCSs?	Х				5
S11	OI	Proficiency test reports						
			ceptable on the applicable proficiency tests or	x				
		evaluation studies?						
S12	OI	Standards documentation	NOT:					
		1	s NIST-traceable or obtained from other	х				
	01	appropriate source?						
S13	OI	Compound/analyte identification p  Are the procedures for compound/analyte		Х				
S14	OI	Demonstration of analyst compete						
	- Ji	Was DOC conducted consistent with	Х					
		Is documentation of the analyst's com	$\frac{\hat{x}}{x}$					
S15	OI	Verification/validation documentat						
	<u> </u>		the data documentated, verified, and					
		validated, where applicable?		Х				
S16	OI	Laboratory standard operating pro	ocedures (SOPs)					
		Are laboratory SOPs current and on f		Х				



	LABORATORY REVIEW CHECKLIST (continued): Exception Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012						
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20872						
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, VX1673						
ER# ¹	Description	n		•						
1		ng purposes, the MQL is defined in the SDL is defined in the report as the MI	e report as the RL. The unadjusted MQL/RL is DL.	reported in the method						
2		ng purposes, the method blank repres the laboratory data package.	ents the unadjusted MQL. The DCS is on file i	n the laboratory and is not						
3	1	,	exas Laboratory Accreditation Program for the kage for analytes that are listed in the Texas F							
4	All anomal	es are discussed in the case narrative	).							
5	1	tory does not perform DCS analysis for e values in the Texas TRRP PCL table	or Method RSKSOP-147/175. The component es.	s reported are not listed or						

¹ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



### GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20872

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample VX1673-MB	<b>File ID</b> X0087062.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	<b>By</b> CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
1868-53-7	Dibromofluoromethane	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	95%	68-124%
2037-26-5	Toluene-D8	99%	80-119%
460-00-4	4-Bromofluorobenzene	98%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20872

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VX1673-BS	<b>File ID</b> X0087060.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By CF	Prep Date n/a	Prep Batch n/a	Analytical Batch VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	22.2	89	68-119
100-41-4	Ethylbenzene	25	22.1	88	71-117
108-88-3	Toluene	25	22.4	90	73-119
1330-20-7	Xylene (total)	75	67.7	90	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
	Dibromofluoromethane	101%	72-122%
17060-07-0	1,2-Dichloroethane-D4	99%	68-124%
2037-26-5	Toluene-D8	101%	80-119%
460-00-4	4-Bromofluorobenzene	92%	72-126%



^{* =} Outside of Control Limits.

# 6.3.1

Page 1 of 1

**Method:** SW846 8260B

#### σ

## Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20872

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC20864-1MS	X0087064.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1MSD	X0087065.D	1	12/06/12	CF	n/a	n/a	VX1673
TC20864-1	X0087063.D	1	12/06/12	CF	n/a	n/a	VX1673

The QC reported here applies to the following samples:

CAS No.	Compound	TC20864-1 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	23.0	92	22.4	90	3	68-119/12
100-41-4	Ethylbenzene	1.0 U	25	22.7	91	22.4	90	1	71-117/12
108-88-3	Toluene	1.0 U	25	22.9	92	22.5	90	2	73-119/13
1330-20-7	Xylene (total)	3.0 U	75	69.8	93	68.4	91	2	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20864-1	Limits
1868-53-7	Dibromofluoromethane	103%	101%	105%	72-122%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	96%	68-124%
2037-26-5	Toluene-D8	100%	100%	100%	80-119%
460-00-4	4-Bromofluorobenzene	91%	92%	98%	72-126%

^{* =} Outside of Control Limits.



### GC Volatiles

## QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20872

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-MB	<b>File ID</b> SS005026.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	<b>Analytical Batch</b> GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l



Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20872

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-BS	File ID SS005023.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	21.0	98	68-139
74-85-1	Ethene	57.4	54.7	95	52-145
74-84-0	Ethane	43.3	56.7	131	68-131
74-98-6	Propane	60.6	68.2	113	69-131
75-28-5	Isobutane	72.5	77.3	107	72-131
106-97-8	Butane	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Matrix Spike Summary**

Job Number: TC20872

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample TC20890-1MS TC20890-1 TC20890-1	File ID SS005029.D SS005027.D SS005030.D	1	Analyzed 12/06/12 12/06/12 12/06/12	By LT LT LT	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch GSS232 GSS232 GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20872-1

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* <del>6</del> 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431*	a 68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Duplicate Summary Job Number:** TC20872

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC20890-1DUP TC20890-1	File ID SS005028.D SS005027.D	_	<b>Analyzed</b> 12/06/12 12/06/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS232 GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20872-1

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Accutest Laborate	orate	ories Gulf Coa	st, Inc.	Dec 12, 20	12 13:13 pm						
Job Number:	bb Number: TC20889										
Account:	Eart	arthCon Consultants									
Project:	Qua	rterly Well Sampli	ng, Parker County	, Texas							
Project Number:	3rd (	Quarter / Trip Blar	ks and Equipmen	t Blanks							
				Legend:	Hit						
Client Sample ID:		EB1-120212	EB2-120212	TB1-120212	TB2-120212						
Lab Sample ID:		TC20889-2	TC20889-3	TC20889-1	TC20889-4						
Date Sampled:		12/02/2012	12/02/2012	12/02/2012	12/02/2012						
Matrix:		Equipment Blank	Equipment Blank	Trip Blank Water	Trip Blank Water						
GC/MS Volatiles (	SW8	46 8260B)									
Benzene	mg/l	0.00034 U	0.00034 U	0.00034 U	0.00034 U						
Toluene	mg/l	0.00055 J	0.00033 U	0.00033 U	0.00033 U						
Ethylbenzene	mg/l	0.00032 U	0.00032 U	0.00032 U	0.00032 U						
Xylene (total)	mg/l	0.00087 U	0.00087 U	0.00087 U	0.00087 U						
GC Volatiles (RSF	<b>(SOF</b>	P-147/175)									
Methane	mg/l	0.00030 U	0.00040	-	0.00030 U						
Ethene	mg/l	0.00050 U	0.00050 U	-	0.00050 U						
Ethane	mg/l	0.00050 U	0.00050 U	-	0.00050 U						
Propane	mg/l	0.00075 U	0.00075 U	-	0.00075 U						
Isobutane	mg/l	0.00075 U	0.00075 U	-	0.00075 U						
Butane	mg/l	0.00075 U	0.00075 U	-	0.00075 U						



12/12/12



# **Technical Report for**

#### **EarthCon Consultants**

**Quarterly Well Sampling, Parker County, Texas** 

3rd Quarter / Trip Blanks and Equipment Blanks

Accutest Job Number: TC20889

**Sampling Date: 12/02/12** 

### Report to:

EarthCon Consultants 4800 Sugar Grove Suite 420

Stafford, TX 77477

gfloreslovo@earthcon.com; djackson@jacksonsjoberg.com; mcpatton@rangeresources.com; escott@earthcon.com

ATTN: Gabriela Floreslovo

Total number of pages in report: 36



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Robriguez Laboratory Director

Client Service contact: Elessa Sommers 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (211-035)

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# **Sample Summary**

EarthCon Consultants

Job No:

TC20889

Quarterly Well Sampling, Parker County, Texas Project No: 3rd Quarter / Trip Blanks and Equipment Blanks

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
TC20889-1	12/02/12	00:00	12/04/12	AQ	Trip Blank Water	TB1-120212
TC20889-2	12/02/12	15:05	12/04/12	AQ	Equipment Blank	EB1-120212
TC20889-3	12/02/12	15:49	12/04/12	AQ	Equipment Blank	EB2-120212
TC20889-4	12/02/12	00:00	12/04/12	AQ	Trip Blank Water	TB2-120212





#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: EarthCon Consultants Job No TC20889

Site: Quarterly Well Sampling, Parker County, Texas Report Date 12/12/2012 12:06:37 P

2 Samples, 2 Trip Blanks were collected on 12/02/2012 and received intact at Accutest on 12/04/2012 and properly preserved in 1 cooler at 2.4 Deg C. These Samples received an Accutest job number of TC20889. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### Volatiles by GCMS By Method SW846 8260B

Matrix AO Batch ID: VZ3820

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20772-2MS, TC20772-2MSD were used as the QC samples indicated.

#### Volatiles by GC By Method RSKSOP-147/175

Matrix AQ Batch ID: GSS232

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC20890-1DUP, TC20890-1MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethene, Propane are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Recovery(s) for Ethane, Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- RPD(s) for Duplicate for Butane, Isobutane, Propane are outside control limits for sample TC20890-1DUP.

Matrix AQ Batch ID: GSS234

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC21021-1DUP, TC21021-2MS were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethane are outside control limits. Probable cause due to matrix interference.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



**Summary of Hits Job Number:** TC20889

Account: EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Collected: 12/02/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method		
TC20889-1	TB1-120212							
No hits reported in this sample.								
TC20889-2	EB1-120212							
Toluene		0.00055 J	0.0010	0.00033	mg/l	SW846 8260B		
TC20889-3	EB2-120212							
No hits reported	in this sample.							

TC20889-4 TB2-120212

No hits reported in this sample.



Sample Results	
Report of Analysis	



# Report of Analysis Page 1 of 1

Client Sample ID: TB1-120212

 Lab Sample ID:
 TC20889-1
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Trip Blank Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	Z030550.D	1	12/06/12	EM	n/a	n/a	VZ3820
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	95% 82% 87% 93%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value



### 4

# **Report of Analysis**

Client Sample ID: EB1-120212

 Lab Sample ID:
 TC20889-2
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Equipment Blank
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
Run #1	Z030551.D	1	12/06/12	EM	n/a	n/a	VZ3820
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00055 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	99% 87% 91% 99%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value



# **Report of Analysis**

Client Sample ID: EB1-120212

 Lab Sample ID:
 TC20889-2
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Equipment Blank
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005038.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2							

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00030 U	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value



#### 4

# **Report of Analysis**

Client Sample ID: EB2-120212

 Lab Sample ID:
 TC20889-3
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Equipment Blank
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

Project: Quarterly Well Sampling, Parker County, Texas

File ID DF **Prep Date Analytical Batch** Analyzed By **Prep Batch** VZ3820 Run #1 Z030552.D 1 12/06/12 EMn/an/aRun #2

Purge Volume
Run #1 5.0 ml
Run #2

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3	Benzene Toluene	0.00034 U 0.00033 U	0.0010 0.0010	0.00034 0.00033	mg/l mg/l	
100-41-4	Ethylbenzene	0.00032 U	0.0010	0.00032	mg/l	
1330-20-7	Xylene (total)	0.00087 U	0.0030	0.00087	mg/l	
CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits		
CAS No. 1868-53-7	Surrogate Recoveries  Dibromofluoromethane	<b>Run# 1</b> 96%	Run# 2	<b>Limits</b> 72-122%		
	8		Run# 2			
1868-53-7	Dibromofluoromethane	96%	Run# 2	72-122%		

U = Not detected SDL - Sample Detection Limit MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



# **Report of Analysis**

Client Sample ID: EB2-120212

 Lab Sample ID:
 TC20889-3
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Equipment Blank
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS005039.D	1	12/06/12	LT	n/a	n/a	GSS232
Run #2							

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00040	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value



# 4

# **Report of Analysis**

Client Sample ID: TB2-120212

 Lab Sample ID:
 TC20889-4
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Trip Blank Water
 Date Received:
 12/04/12

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
Run #1	Z030549.D	1	12/06/12	EM	n/a	n/a	VZ3820
Run #2							

	Purge Volume	
Run #1	5.0 ml	
Run #2		

#### **Purgeable Aromatics**

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2 108-88-3 100-41-4 1330-20-7	Benzene Toluene Ethylbenzene Xylene (total)	0.00034 U 0.00033 U 0.00032 U 0.00087 U	0.0010 0.0010 0.0010 0.0030	0.00034 0.00033 0.00032 0.00087	mg/l mg/l mg/l mg/l	
CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits		
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	95% 84% 88% 93%		72-122% 68-124% 80-119% 72-126%		

 $\begin{array}{ll} U = & Not \; detected & SDL \; - \; Sample \; Detection \; Limit \\ MQL = & Method \; Quantitation \; Limit \\ \end{array}$ 

E = Indicates value exceeds calibration range

J = Indicates an estimated value



### 4

# **Report of Analysis**

Client Sample ID: TB2-120212

 Lab Sample ID:
 TC20889-4
 Date Sampled:
 12/02/12

 Matrix:
 AQ - Trip Blank Water
 Date Received:
 12/04/12

 Method:
 RSKSOP-147/175
 Percent Solids:
 n/a

**Project:** Quarterly Well Sampling, Parker County, Texas

		File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>	
Rυ	n #1	SS005105.D	1	12/10/12	LT	n/a	n/a	GSS234	
Rυ	n #2								

#### **RSK147 Special List**

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	0.00030 U	0.00050	0.00030	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.00050 U	0.0010	0.00050	mg/l	
74-98-6	Propane	0.00075 U	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

U = Not detected SDL - Sample Detection Limit

MQL = Method Quantitation Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- · Chain of Custody
- LRC Form



PAGE ___ OF ___

#### CHAIN OF CUSTODY

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i. a o o - a t o r i e s			10165 Har TEL. 713	3-271-470		713-							Accul	est Quote	7				Accutes	t Job#	_	TC	20	2889
Client / Reporting Information			Project							T.						Req	uest	ted	Ana	lyse	s			Matrix Codes
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4800 Sugar Grove Blvd., Suite 390 City State Zip	City		State	Compan									7	ane								i i		SW - Surface Water SO - Soil
Stafford TX 77477				1										l ä										SL- Sludge SED-Sediment
Project Contact E-mail	Project #			Street Ad	ddress									Iso										OI - Oil
Gabriela Floreslovo													_	je j						ļ				LIQ - Other Liquid AIR - Air
Phone # Fax #	Client Purchase (	Order#		City				Si	ate		Zi	р	1	the										SOL - Other Solid
281-201-3513 Sampler(s) Name(s) Phone #	Project Manager			A H 1'									4	, e , Y										WP - Wipe FB-Field Blank
	Project Manager			Attention	i.								l	E S										
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Accutest					# of bottles	豆	ZANac	HN03	VONE	EO H	g   }	SO	BTEX	ig at										LAB USE ONLY
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7 EB1-1202+Q	12/2/12	1505	JA	W	6	x							X	_ X										
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TC20889: Chain of Custody Page 1 of 5



PAGE ___ OF ___

CHAIN	$\mathbf{OF}$	CUSTODY
CHAIN	Or.	COSTODI

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Company Name												je je									
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	,	State	Company	Name							1	tar	200		- 1						SO - Soil SL- Sludge
Stafford TX 77477 Project Contact E-mail	Project #		Street Ad	droce							4	lg.		.	1			- 1			SED-Sediment
	Project#		Sileet Au	uiess							1	is,			- 1	- 1					OI - Oil LIQ - Other Liquid
Gabriela Floreslovo	Client Purchase Order#		City				State		Zi			e			į.			ı			AIR - Air
	Ciletit Purchase Order #		City				Otate		21	P		17.5									SOL - Other Solid WP - Wipe
281-201-3513 Sampler(s) Name(s) Phone :	# Project Manager		Attention:								4	8, e		.				1			FB-Field Blank
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Sample # Field ID / Point of Collection	Date 1	ime Sampled By	Matrix	bottles	N HCI	ă £	위 N	5 ₹	P 2	<u> </u>	<u> </u>	m n								<u> </u>	LAB USE ONLY
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5 Day RUSH				Commer	ial "B" (	Level	2)	Ē	EDD	Form	at										
4 Day RUSH				FULT1 (	Level 3+	4 }			Oth	er											
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2 Day RUSH		-		Commer									1								
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#### **Accutest Laboratories Sample Receipt Summary**

Accutest Job Number: TC20	889	С	lient: EARTHCO	ON CON	SULTANT	rs	Project: 3RD QTR WEI	LL SAMPLI	NG,F	PARKE	R COUNTY,T
Date / Time Received: 12/4/2	2012	<u>_</u>	Delivery	Method:	:	Client	Airbill #'s:				
No. Coolers: 1	Therm	ID: IR6	<del></del> 6;				Temp Adjustment Factor:	0.2;			
Cooler Temps (Initial/Adjusted	d): <u>#1:</u>	(2.2/2.4)	):								
Cooler Security Y	or N			<u> Y o</u>	r N	Sample Integr	ity - Documentation	<u>Y</u>	or	N	
Custody Seals Present:  ✓		3. 0	COC Present:	✓		Sample label	s present on bottles:	<b>~</b>			
2. Custody Seals Intact:		4. Sm	pl Dates/Time OK	✓		Container lab	•	<b>~</b>			
Cooler Temperature	Υ (	or N					ainer label / COC agree:	<b>✓</b>			
1. Temp criteria achieved:	<b>✓</b>					Sample Integ	rity - Condition	<u> Y</u>	or	N	
Cooler temp verification:						1. Sample recvo	d within HT:	<b>~</b>			
3. Cooler media:	lce	e (Bag)				2. All containers	accounted for:	<b>~</b>			
<b>Quality Control Preservation</b>	Υ	or N	N/A	WTB	STB	3. Condition of	sample:	Brok	en / L	eaking	
1. Trip Blank present / cooler:	<b>✓</b>			$\checkmark$		Sample Integ	rity - Instructions	Υ_	or	N	N/A
2. Trip Blank listed on COC:	✓					Analysis req	uested is clear:	<b>~</b>			
3. Samples preserved properly:	<b>✓</b>					2. Bottles recei	ved for unspecified tests			<b>✓</b>	
4. VOCs headspace free:	<b>✓</b>					3. Sufficient vo	lume recvd for analysis:	<b>~</b>			
						4. Compositing	instructions clear:				$\checkmark$
						5. Filtering inst	ructions clear:				✓
Comments - "TB1-1202-12", rec	eived or	ne of two v	rials broken, limited	d volume.		urwin Drive				Н	louston, TX 77036
V:713.271.4700						271.4770					/ww/accutest.com

TC20889: Chain of Custody Page 3 of 5

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#### **Problem Resolution**

Accutest Job Number: TC20889

CSR: Elessa Sommers Response Date: 12/5/2012

Response: Lab will run 8260B analysis on trip blank. No sample available for dissolved gases on the trip blank.

TC20889: Chain of Custody

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#### Sample Receipt Log

 Job #:
 TC20889
 Date / Time Received:
 12/4/2012
 Initials:
 CH

Client: EARTHCON CONSULTANTS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	рН	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC20889-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-2	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
1	TC20889-3	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	2.2	0.2	2.4
	TC20889-4	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.				
	TC20889-4	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.				

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# Appendix A Laboratory Data Package Cover Page

This signature page, the laboratory review checklist, and the following reportable data:

TC20889 This data package consists of

**QA Manager** Name (Printed)

Richard Rodriguez

Signature

	13.1	i leid chain-or-custody documen	tation,
	R2	Sample identification cross-refer	rence;
	R3	Test reports (analytical data she	ets) for each environmental sample that includes:
		a)	Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b)	dilution factors,
		c)	preparation methods,
		d)	cleanup methods, and
		e)	if required for the project, tentatively identified compounds (TICs).
	R4	Surrogate recovery data including	ng:
		a)	Calculated recovery (%R), and
		b)	The laboratory's surrogate QC limits.
	R5	Test reports/summary forms for	blank samples;
	R6	Test reports/summary forms for	laboratory control samples (LCSs) including:
		a) ,	LCS spiking amounts,
		b)	Calculated %R for each analyte, and
		c)	The laboratory's LCS QC limits.
□	R7	Test reports for project matrix sp	ike/matrix spike duplicates (MS/MSDs) including:
-		a)	Samples associated with the MS/MSD clearly identified,
		b)	MS/MSD spiking amounts,
		c)	Concentration of each MS/MSD analyte measured in the parent and
		d)	Calculated %Rs and relative percent differences (RPDs), and
		e)	The laboratory's MS/MSD QC limits
Ū.	R8	Laboratory analytical duplicate (i	if applicable) recovery and precision:
•		a)	The amount of analyte measured in the duplicate,
		b)	The calculated RPD, and
		c)	The laboratory's QC limits for analytical duplicates.
Ū.	R9	List of method quantitation limits	(MQLs) and detectability check sample results for each analyte for each
i i	R10	Other problems or anomalies.	
•		,	
			NR)" item in Laboratory Review Checklist and for each analyte, matrix, and accreditation under the Texas Laboratory Accreditation Program.
		•	,
Release	Statement:	Lam responsible for the release of	of this laboratory data package. This laboratory is NELAC accredited under the
		•	nods, analytes, and matrices reported in this data package except as noted in
			ewed by the laboratory and is complete and technically compliant with the
			by the laboratory in the attached exception reports. By my signature below, I
			lies, observed by the laboratory as having the potential to affect the quality of
			aboratory Review Checklist, and no information or data have been knowingly
withheld.			<del></del>
	applicable	This laboratory meets an excepti	ion under 30 TAC&25.6 and was last inspection by
[]		[X ] TCEQ or [ ] on Ap	oril 2011. Any findings affecting the data in this laboratory data package are
		noted in the Exception Reports h	nerein. The official signing the cover page of the report in which these data are

used is responsible for releasing this data package and is by signature affirming the above release statement

Date

12/12/2012

Official Title (printed)

Laboratory Director



Labara 1		-	CHECKLIST: REPORTABLE			040		
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/	12/2	012		
Droinet No	mo:	Quarterly Well Sampling, Parker County, Texas	Laboratory Project Number:	Т.	2088	20		
Project Na	ine.	County, rexas	Laboratory Project Number.	GSS			234.	
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	VZ38			,	
# ¹	A ²	DESCRIPTION	, ,	YES	NO	NA ³	NR⁴	ER#
R1	OI	CHAIN-OF-CUSTODY (C-O-C):						
		Did samples meet the laboratory's st	andard conditions of sample acceptability	X				
		upon receipt?						
		Were all departures from standard co	onditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) id	lentification					
		Are all field sample ID numbers cross	s-referenced to the laboratory ID numbers?	Х				
		Are all laboratory ID numbers cross-r	referenced to the corresponding QC data?	Х				
R3	OI	Test reports						
		Were samples prepared and analyze	ed within holding times?	Х				
		Other than those results <mql, td="" were<=""><td>all other raw values bracketed by calibration</td><td>Х</td><td></td><td></td><td></td><td></td></mql,>	all other raw values bracketed by calibration	Х				
		standards?		_ ^				
		Were calculations checked by a peer	r or supervisor?	Х				
		Were all analyte identifications check		Х				
		Were sample detection limits reporte		Х				
			t samples reported on a dry weight basis?			Х		
		Were % moisture (or solids) reported		<u> </u>		X		
		·	platile analysis extracted with methanol per			x		
		SW846 Method 5035?						
		If required for the project, are TIC's re	ерогіеа?			Х	Ш	
R4	0	Surrogate recovery data		- V				
		Were surrogates added prior to extra	n all samples within the laboratory QC limits?	X			$\vdash$	
R5	OI	Test reports/summary forms for b		X		_	ш	
СЭ	UI UI	Were appropriate type(s) of blanks a	•					
		Were blanks analyzed at the appropri	•	X			$\vdash$	
			he entire analytical process, including	<del>  ^</del>		-	$\vdash$	
		preparation and, if applicable, cleanu		X				
		Were blank concentrations <mql?< td=""><td>ip procedures:</td><td>X</td><td></td><td></td><td></td><td></td></mql?<>	ip procedures:	X				
R6	OI	Laboratory control samples (LCS)	,					
	- 0.	Were all COCs included in the LCS?		X	I	ı	П	
			tire analytical procedure, including prep and					
		cleanup steps?		X				
		Were LCSs analyzed at required free	quency?	Х				
		Were LCS (and LCSD, if applicable)	%Rs within the laboratory QC limits?	Х				
		Does the detectablility check sample	data document the laboratory's capability to	X				
		detect the COCs at the MDL used to	calculate the SDLs?	^				5
		Was the LCSD RPD within QC limits	s?			Х		
R7	OI	Matrix spike (MS) and matrix spike						
			nalytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appro		X	L_			
		Were MS (and MSD, if applicable) %			Х			4
		Were the MS/MSD RPDs within laborate	pratory QC limits?	X				
R8	OI	Analytical duplicate data						
		Were appropriate analytical duplicate		X				
		Were analytical duplicates analyzed		X				
			iations within the laboratory QC limits?		X			4
R9	OI	Method quantitation limits (MQLs)						
			rte included in the laboratory data package?	X	-	<u> </u>	$\vdash$	
		-	centration of the lowest non-zero calibration luded in the laboratory data package?	X	Х	-	$\vdash$	2
D10	OI	Other problems/anomalies	nuded in the laboratory data package?					
R10	U U		pecial conditions noted in this LRC and ER?	X				
			pecial conditions noted in this LRC and ER?	X		<del>                                     </del>		
			under the Texas Laboratory Accreditation	+^		<u> </u>		
			and methods associated with this laboratory	×		l		3
		data package?	and methods associated with this laboratory	^		l		3
		aaaa paonago.		ь	L		ш	



Laboratory	/ Name:	Accutest Gulf Coast	LRC Date:	12	/12/2	012		
Project Na	ame:	Quarterly Well Sampling, Parker	Laboratory Project Number:		208			
				1		GSS	234,	
Reviewer		Anita Patel	Prep Batch Number(s):	VZ38		13	Lun4	I=5 "
#1	A ²	DESCRIPTION		YES	NO	NA	NK.	ER#
S1	OI	Initial calibration (ICAL)			_			
			e response factors for each analyte within QC	Х				
		limits?	-Winings missing mass	Х				
		Were percent RSDs or correlation co	mended in the method used for all analytes?	_				
			ne lowest and highest standard used to	X				
		calculate the curve?	ie lowest and highest standard used to	Х				
		Are ICAL data available for all instrum	nents used?	Х				_
			verified using an appropriate second source	1				<u> </u>
		standard?	verified dailing all appropriate second source	Х				
S2	OI		erification (ICCV AND CCV) and continuing					
	<del>                                     </del>	Was the CCV analyzed at the method		Х	П	П	П	
			alyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each	,	X				t
			e concentration in the inorganic CCB <mdl?< td=""><td><u> </u></td><td></td><td>Х</td><td></td><td></td></mdl?<>	<u> </u>		Х		
S3	0	Mass spectral tuning	g			,		
		Was the appropriate compound for the	ne method used for tuning?	Х	Π	П	П	
		Were ion abundance data within the	<u> </u>	Х				
S4	0	Internal standards (IS)	·					
			nes within the method-required QC limits?	Х				
S5	OI	Raw data (NELAC Section 5.5.10)	•					
			matograms, spectral data) reviewed by an	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		1	Π	
		analyst?		X				
		Were data associated with manual in	tegrations flagged on the raw data?	Х				
S6	0	Dual column confirmation						
		Did dual column confirmation results	meet the method-required QC?			X		
S7	0	Tentatively identified compounds (						
		If TICs were requested, were the mas	s spectra and TIC data subject to appropriate			l x		
		checks?						
S8	ı	Interference Check Sample (ICS) re					_	
		Were percent recoveries within method				X		
S9	ı		kes, and method of standard additions					
			, and the linearity within the QC limits			X		
	<del></del>	specified in the method?						
S10	OI	Method detection limit (MDL) studi		· ·	_	1		
		Was a MDL study performed for each		X				
S11	OI	Is the MDL either adjusted or support	led by the analysis of DCSs?	X				5
511	l oi	Proficiency test reports	ceptable on the applicable proficiency tests or		_		_	
		evaluation studies?	ceptable on the applicable proficiency tests of	Х				
S12	OI	Standards documentation						
312	<del>  0</del>		s NIST-traceable or obtained from other					
		appropriate source?	3 NOT traceable of obtained from other	Х				
S13	OI	Compound/analyte identification p	rocedures			-		
	<del>                                     </del>	Are the procedures for compound/ana		Х				
S14	OI	Demonstration of analyst compete						
	† <u> </u>	Was DOC conducted consistent with		Х		1		
		Is documentation of the analyst's com		X		<u> </u>		<u> </u>
S15	OI		ion for methods (NELAC Chapter 5)					
	<del>                                     </del>		the data documentated, verified, and			Ī	Ī	
		validated, where applicable?		X		1	l	
S16	OI	Laboratory standard operating pro	ocedures (SOPs)					
		Are laboratory SOPs current and on f	ile for each method performed?	Х				



	LABOR	RATORY REVIEW CHEC	KLIST (continued): Exception	n Reports									
Laboratory	Name:	Accutest Gulf Coast	LRC Date:	12/12/2012									
Project Na	me:	Quarterly Well Sampling, Parker	Laboratory Project Number:	TC20889									
Reviewer	Name:	Anita Patel	Prep Batch Number(s):	GSS232, GSS234, VZ3820									
ER#1	Description	on											
1	blank. The	SDL is defined in the report as the MI											
2	manager and the same parting of												
3			exas Laboratory Accreditation Program for the kage for analytes that are listed in the Texas F										
4	All anomal	ies are discussed in the case narrative	).										
5		atory does not perform DCS analysis for re values in the Texas TRRP PCL table	or Method RSKSOP-147/175. The component es.	ts reported are not listed or									
i													

1ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on



# GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



**Method:** SW846 8260B

# Method Blank Summary Job Number: TC20889

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VZ3820-MB	<b>File ID</b> Z030534.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VZ3820

### The QC reported here applies to the following samples:

TC20889-1, TC20889-2, TC20889-3, TC20889-4

CAS No.	Compound	Result	RL	MDL	Units Q
71-43-2	Benzene	ND	1.0	0.34	ug/l
100-41-4	Ethylbenzene	ND	1.0	0.32	ug/l
108-88-3	Toluene	ND	1.0	0.33	ug/l
1330-20-7	Xylene (total)	ND	3.0	0.87	ug/l

CAS No.	<b>Surrogate Recoveries</b>		Limits
1868-53-7	Dibromofluoromethane	95%	72-122%
	1,2-Dichloroethane-D4	86%	68-124%
2037-26-5	Toluene-D8	88%	80-119%
460-00-4	4-Bromofluorobenzene	93%	72-126%



**Method:** SW846 8260B

# Blank Spike Summary Job Number: TC20889

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample VZ3820-BS	<b>File ID</b> Z030532.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By EM	Prep Date n/a	Prep Batch n/a	Analytical Batch VZ3820

The QC reported here applies to the following samples:

TC20889-1, TC20889-2, TC20889-3, TC20889-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	20.7	83	68-119
100-41-4	Ethylbenzene	25	20.6	82	71-117
108-88-3	Toluene	25	20.8	83	73-119
1330-20-7	Xylene (total)	75	64.2	86	74-119

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
1868-53-7	Dibromofluoromethane	92%	72-122%
17060-07-0	1,2-Dichloroethane-D4	84%	68-124%
2037-26-5	Toluene-D8	91%	80-119%
460-00-4	4-Bromofluorobenzene	91%	72-126%



^{* =} Outside of Control Limits.

**Method:** SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC20889

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	<b>Analytical Batch</b>
TC20772-2MS	Z030536.D	1	12/06/12	EM	n/a	n/a	VZ3820
TC20772-2MSD	Z030537.D	1	12/06/12	EM	n/a	n/a	VZ3820
TC20772-2	Z030535.D	1	12/06/12	EM	n/a	n/a	VZ3820

The QC reported here applies to the following samples:

TC20889-1, TC20889-2, TC20889-3, TC20889-4

CAS No.	Compound	TC20772-2 ug/l Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	25	21.6	86	20.6	82	5	68-119/12
100-41-4	Ethylbenzene	ND	25	21.4	86	20.9	84	2	71-117/12
108-88-3	Toluene	ND	25	20.5	82	20.5	82	0	73-119/13
1330-20-7	Xylene (total)	ND	75	68.6	91	64.8	86	6	74-119/13

CAS No.	<b>Surrogate Recoveries</b>	MS	MSD	TC20772-2	Limits
1868-53-7	Dibromofluoromethane	94%	93%	99%	72-122%
17060-07-0	1,2-Dichloroethane-D4	83%	84%	87%	68-124%
2037-26-5	Toluene-D8	86%	89%	89%	80-119%
460-00-4	4-Bromofluorobenzene	89%	91%	94%	72-126%



^{* =} Outside of Control Limits.



# GC Volatiles

# QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20889

PESTXST EarthCon Consultants **Account:** 

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample GSS232-MB	<b>File ID</b> SS005026.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

TC20889-2, TC20889-3

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

# Method Blank Summary Job Number: TC20889

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample File ID DF Analyzed By Prep Date Prep Batch Ana GSS234-MB SS005099.D 1 12/10/12 LT n/a n/a GSS	lytical Batch 234
-------------------------------------------------------------------------------------------------------	----------------------

The QC reported here applies to the following samples:

TC20889-4

CAS No.	Compound	Result	RL	MDL	Units Q
74-82-8	Methane	ND	0.50	0.30	ug/l
74-85-1	Ethene	ND	1.0	0.50	ug/l
74-84-0	Ethane	ND	1.0	0.50	ug/l
74-98-6	Propane	ND	1.5	0.75	ug/l
75-28-5	Isobutane	ND	1.5	0.75	ug/l
106-97-8	Butane	ND	1.5	0.75	ug/l

Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20889

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS232-BS	File ID SS005023.D	<b>DF</b> 1	<b>Analyzed</b> 12/06/12	By LT	<b>Prep Date</b> n/a	Prep Batch n/a	Analytical Batch GSS232

The QC reported here applies to the following samples:

TC20889-2, TC20889-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	21.5	21.0	98	68-139
74-85-1	Ethene	57.4	54.7	95	52-145
74-84-0	Ethane	43.3	56.7	131	68-131
74-98-6	Propane	60.6	68.2	113	69-131
75-28-5	Isobutane	72.5	77.3	107	72-131
106-97-8	Butane	76.6	82.4	108	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# Blank Spike Summary Job Number: TC20889

Account: PESTXST EarthCon Consultants

Quarterly Well Sampling, Parker County, Texas **Project:** 

Sample GSS234-BS	<b>File ID</b> SS005096.D	<b>DF</b> 1	<b>Analyzed</b> 12/10/12	By LT	Prep Date n/a	Prep Batch n/a	Analytical Batch GSS234

The QC reported here applies to the following samples:

TC20889-4

CAS No.	Compound		pike g/l	BSP ug/l	BSP %	Limits
74-82-8	Methane	2	1.5	20.9	97	68-139
74-85-1	Ethene	5	7.4	43.4	76	52-145
74-84-0	Ethane	4	3.3	49.3	114	68-131
74-98-6	Propane	6	0.6	59.3	98	69-131
75-28-5	Isobutane	7	2.5	69.9	96	72-131
106-97-8	Butane	7	6.6	73.6	96	66-128



^{* =} Outside of Control Limits.

Method: RSKSOP-147/175

# **Matrix Spike Summary**

Job Number: TC20889

PESTXST EarthCon Consultants Account:

Quarterly Well Sampling, Parker County, Texas Project:

Sample TC20890-1MS TC20890-1 TC20890-1	File ID SS005029.D SS005027.D SS005030.D	1	<b>Analyzed</b> 12/06/12 12/06/12 12/06/12	By LT LT LT	Prep Date n/a n/a n/a	Prep Batch n/a n/a n/a	Analytical Batch GSS232 GSS232 GSS232
1 C20890-1	\$\$005030.D	250	12/06/12	LI	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20889-2, TC20889-3

CAS No.	Compound	TC20890-1 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	20100 b	21.5	17100	-13815	* <del>0</del> 8-139
74-85-1	Ethene	1.0 U	57.4	5540	9654*	52-145
74-84-0	Ethane	3500 b	43.3	4120	1431* 8	68-131
74-98-6	Propane	66.8	60.6	172	174*	69-131
75-28-5	Isobutane	8.41	72.5	93.3	117	72-131
106-97-8	Butane	10.3	76.6	101	119	66-128

⁽a) Outside control limits due to high level in sample relative to spike amount.



⁽b) Result is from Run #2.

^{* =} Outside of Control Limits.

Page 1 of 1

Method: RSKSOP-147/175

## Matrix Spike Summary Job Number: TC20889

Account: PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-2MS TC21021-2	File ID SS005113.D SS005112.D	<b>Analyzed</b> 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

TC20889-4

CAS No.	Compound	TC21021-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	1.49	21.5	24.3	106	68-139
74-85-1	Ethene	ND	57.4	55.4	97	52-145
74-84-0	Ethane	ND	43.3	64.1	148*	68-131
74-98-6	Propane	ND	60.6	75.7	125	69-131
75-28-5	Isobutane	ND	72.5	87.2	120	72-131
106-97-8	Butane	ND	76.6	93.9	123	66-128



^{* =} Outside of Control Limits.

Page 1 of 1

Method: RSKSOP-147/175

## **Duplicate Summary Job Number:** TC20889

PESTXST EarthCon Consultants Account:

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
TC20890-1DUP	SS005028.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005027.D	1	12/06/12	LT	n/a	n/a	GSS232
TC20890-1	SS005030.D	250	12/06/12	LT	n/a	n/a	GSS232

The QC reported here applies to the following samples:

TC20889-2, TC20889-3

CAS No.	Compound	TC20890-1 ug/l Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	20100 a	16400	E	21	53
74-85-1	Ethene	1.0 U	ND		nc	27
74-84-0	Ethane	3500 a	4020	E	14	43
74-98-6	Propane	66.8	99.1		39*	21
75-28-5	Isobutane	8.41	12.1		36*	35
106-97-8	Butane	10.3	15.1		38*	33

(a) Result is from Run #2.



^{* =} Outside of Control Limits.

Page 1 of 1

Method: RSKSOP-147/175

## **Duplicate Summary Job Number:** TC20889

**Account:** PESTXST EarthCon Consultants

**Project:** Quarterly Well Sampling, Parker County, Texas

Sample TC21021-1DUP TC21021-1	File ID SS005111.D SS005110.D	Analyzed 12/10/12 12/10/12	By LT LT	Prep Date n/a n/a	Prep Batch n/a n/a	Analytical Batch GSS234 GSS234

The QC reported here applies to the following samples:

TC20889-4

CAS No.	Compound	TC21021-1 ug/l Q	DUP ug/l Q	RPD	Limits
74-82-8	Methane	0.88	0.86	2	53
74-85-1	Ethene	ND	ND	nc	27
74-84-0	Ethane	ND	ND	nc	43
74-98-6	Propane	ND	ND	nc	21
75-28-5	Isobutane	ND	ND	nc	35
106-97-8	Butane	ND	ND	nc	33



^{* =} Outside of Control Limits.



Environmental Challenges BUSINESS SOLUTIONS ®

**Groundwater Sampling Record** 

WELL No.		OWNER			ADDRESS				DATE.		
SAMPLE ID	WW #25			atthews	SAMPLER NAM	11	4 N. Ridge	Oak Ct.	DATE 12/2/12		
	WW 25- M.	at- 12	0212			70.	SH, M	~			
SAMPLE TIME	6927				FIELD CONDITI	ONSWEATHER	Par	the Clau	Ly 66°E		
		<del></del>					_	/	, ,		
l											
Well/ Sami	ple Condition (circle o	ne)	<del>.</del>	Well Purgin	<u> </u>						
Pump operating ves no Pumping rate 2.5 gallons/minute											
Owner Preser		@r					illiato				
				Volume pumpe		gallons		فمما			
Sample Wate	r Treated yes	Clarity	<u> </u>	26/	Other obse	ervations nd	0001				
<u> </u>											
TIME	CUMULATIVE VOLUME	Temp °C	pН	Conducti	· 1	DO (ma/l)	ORP	Turbidity	ODOR/COLOR/ REMARKS		
24:00 hr	(gal)	<b>9</b> C	S.U.	%µS/cm	1)	(mg/L)	(mV)	(NTU)			
0965	0					A. A.	60		PURGE START		
0908	1	2057		0.927		4.61	58	9.2	no odor		
0911	ι		8.72	0.92		4.54	76	8.2			
0914	3		8.69	0.921		4.07	84	8.4	-		
0917	3.5	20.11	8.70	0.12		4.32	86	8.2			
0920	4.0	20.00	8.70	0.92		4.34	88	8,0			
923	45	19.92	8.69	0.92		4.28	89	9.0			
0926	5.0	19.86	8.70	0.525		4.17	90	4.0			
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Environmental Challenges
BUSINESS SOLUTIONS®

Well ID:	WW #25	
Owner:	Jeff Matthews	
Address:	114 N. Ridge Oak Ct.	
Date:	12/2/12	

LEL -- lower explosive level
LFL -- lower flammable level
NIOSH -- National Institute for Occupational
Safety and Health
O2 -- oxygen
OSHA -- Occupational Safety and Health
Administration
ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average
TLV -- time-limited value
UEL -- upper explosive level
UFL -- upper flammable level

	Gette.			
LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
Alarm Level	Alarm Level	Alarm Level	Alarm Level	
10 % LEL	19.50%	10 ppm	35 ppm	
UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
15%	22%	10 ppm/10 min	35 ppm	
LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
5%	19.50%	10 ppm	50 ppm	
Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9		٥	0836
	2	0	20.9	1		0846
	3	G	20.9	l .	2	0856
	4	0	20.9	1	7	0466
Well Head	1	0	20.9	- 1	0	0636
	2	G	20.9	Ł	2	0846
	3	0	20.9	1	2	0856
	4	0	20.9	1	7.	0966
Sampling Location	1	0	20.9	1	0	0836
	2	0	20.9	1	ı	0846
	3	O	20.9	ι	Z	0856
	4	0	20,9	1	2	0406

DATE: 12/2/12

**WELL # WW 25** 

**NOTES TAKEN BY:** 

- Arrived onsite at 0832

- Began purging at 0835

. Began parameters at 09.05

- Sampled at 0927

- Left Site at 0930



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Environmental Challenges
BUSINESS SOLUTIONS®

**Groundwater Sampling Record** DATE WELL No. ADDRESS 100 N. Ridge Oak Ct. WW #24 Pamela Smith SAMPLER NAME SAMPLE ID WW24-Smi- 113012 B SAMPLE TIME FIELD CONDITIONS/WEATHER 1310 Well Purging Well/ Sample Condition (circle one) Pump operating no Pumping rate gailons/minute Owner Present no yes 150 gallons Volume pumped Sampled Water Treated (no) Clear Clarity Other observations ODOR/COLOR/ TIME CUMULATIVE VOLUME Conductivity Turbidity Temp pН (NTU) REMARKS °C S.U. (MS/cm) (mg/L) (mV) 24:00 hr (gal) 1256 **PURGE START** 0 0.919 sulfur oder 14.15 8.67 8.53 -186 18.7 1258 1 0.919 18.9 -187 14.09 8.59 7.40 1300 18.2 14.04 1302 3 8.54 0.920 6.85 -186 1304 16.04 8.62 0.920 6.72 -189 17.8 16.08 8.62 0.920 6.58 -190 17.9 1306 18.3 14.05 8.62 6.47 -191 1308 0.920



LEL (Calibrated for

Methane)

Well ID:	WW #24
Owner:	Pamela Smith
Address:	100 N. Ridge Oak Ct.
Date:	11/30/12

CO

ppm

Time of Reading

LEL – lower explosive level
LFL – lower flammable level
NIOSH National Institute for Occupational
Safety and Health
O2 oxygen
OSHA Occupational Safety and Health
Administration
ppm parts per million
REL recommended exposure limit
TWA time-weighted average
TLV time-limited value
UEL upper explosive level
UFL upper flammable level

Location & Coordinates

Background

Well Head

Sampling Location

	%		<b>PP</b>		
	Alarm Level	Alarm Level	Alarm Levei	Aiarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19.50%	10 ppm	50 ppm	
#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
1	D	20.7	0	2	1224
2	0	20.9	6	2	1234
3	0	20.9	0	3	1244
4	0	21.2	0	Li	1254
1	0	70.7	0	2	1224
2	0	20.9	0	2 3	1234
3	0	20.9	0		1244
4	0	21.2	O	4	1254
1	O	20.7	٥	6	1224
2	σ	20.9	0	2	1234
3	0	20.9	0	3	1244
4	Δ	21.2	0	4	1754

H₂S

ppm

DATE:

WELL# WW 24

**NOTES TAKEN BY:** 

ons: te@ 1215

storted pors: ~ Q 1239

Low flow@ 1256 - 1308

Surpled at 1310

leave site @ 1330

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Relinquished by:	Relinquished by Sampler:	Ralinquished by Sampler:		Emergency & Rush T/A data available V/A Lablink	1 Day EMERGENCY	2 Day RUSH	□ 3 Day RUSH	4 Day RUSH	U Suay Kush	X Standard	Tumaround Time ( Business days)			0.00						12W24-Smi-1130	Accused Samples Field ID / Point of Collection		Sampler(s) Name(s)	Phone # Fax #	Gabriela Floreslovo	ntact E-mail	Stafford TX 7	City State	Cheer Audiess	EarthCon Consultants, Inc.	Company Name	Client / Reporting Information		Laboratories
Date Time:	Date Time:	Date Time:	11011	-			1			Approved By (Accutest PM): / Date:	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s									3012 11-30-13	D Date		Phone # Project Manager	Client Purchase Order #		Project #	77477	Zip City	Siren	Third Quarter	Project Name			
Received By: 5	Received By:	Received By:	nple Custody must be doo	(2)	)					est PM): / Date:										1310 120	Time Sampled By	Collection		order#				State		Third Quarterly Well Sampling, Parker County, Texas		Proje	TEL.	101651
			Sample Custody must be documented below each time samples change poss	Com	Com	Commercial "C"	REDT1 (Level 3+4)	FULLY (Level 3+4)	Commercial o (Fever 2)	Commercial "A" (Level 1)	] Lat						1			Lw 6 1	Matrix # of HCI NaOH		Attention:	City		Street Address		Company Name		r County, Texas		Project Information	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	10165 Harwin Dr, Ste 150 Houston, TX 77036
eustody Seal #	Relinquished By:	Relinquished By:					٥		][	Level 1) X TRRP	гари птогта										ZA/NaOH HNO3 H2SO4 NONE DI Water MEOH TSP NaHSO4	Number of preserved Bottles		State Zip	1000			erent from Report (o)					4770	77036
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Cooler Temp.												/	/								LAB USE ONLY		FB-Field Blank	SOL - Other Solid WP - Wipe	LIQ - Other Liquid	OI - ON	SL- Sludge	SW - Surface Water SO - Soil	WW - Water	DW - Drinking Wate		Matrix Codes		

Email: Phone: Address: 5200 N SAM Houston, TX 77086 COMPANY: WEATHER FORD LABOR ATORIES Name: Send Data and Invoice to Received by Relinquished by Received by Relinquished by Received by Relinquished by Sample Description Chain-of-Custody Record glan Hornackie @ Westherfood labs. com 837-515, 5137 WW24-Smi-113012 ALAN KORZACKI Sample Identification Location: Project: Third dwarter well sampling Location: Park or Powory, Truss
Sampled by: UB SH RM 11-30-12 **Date Sampled** Saithcon Company **Analyses Requested** Date Isotech Laboratories, Inc. mail@isotechlabs.com Champaign, IL 6182 Phone: 217-398-3490 www.isotechlabs.com 1308 Parkland Cour Fax: 217-398-3493 16/17 Time

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### Environmental Challenges BUSINESS SOLUTIONS

**Groundwater Sampling Record** 

WELL No.	WW #22	OWNER	Timothy & S	Sheryl Simpson	ADDRESS	277	S. Ridge	Oak Ct.	DATE (2) 1/12
SAMPLE ID	wwzz - S	im - 1	20112	-	SAMPLER NA	ME 18.51	4. pm		. /
SAMPLE TIME	1300				FIELD CONDI	TIONS/WEATHER	<b>'</b> S.	mm.	73°F
Spigo	WW#22 WWZZ - S 1300 t broken, in	sected	3/8"	tubing	inte	splgat	to	puge.	
	lition (circle one)			Well Purgin	na	_			
Pump operati		no		Pumping rate		<u>. ८५</u> gallons/mi	nute		
Owner Preser	nt yes	no		Volume pumpe	d 3	7.5 gallons			
Sampled Wat	er Treated yes	(m)		Clarity		lear	Other obser	vations Su	fur oder
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conducti (p6/cm		DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
1248	0	RELIGIO	NSUPPE	REELE					PURGE START
1250	4.0	21.45	8.75	1.38		0.81	-324	1.9	solfer oder
1252	7.0	21.24	8.74	1.38		0.62	-348	0.8	
1254	3.0	2140	4.74	1.38		6.77	-346	0.9	
1256	4.0	21.45	8.74	1.34		0.66	-342	0.2	
1258	5.0	21.44	9.73	1.37	-	0.49	-343	2.5	
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 Well ID:
 WW #22

 Owner:
 Timothy & Sheryl Simpson

 Address:
 277 S. Ridge Oak Ct.

 Date:
 (2/1/2)

LEL — lower explosive level
LFL — lower flammable level
NIOSH — National Institute for Occupational
Safety and Health
O2 — oxygen
OSHA — Occupational Safety and Health
Administration
ppm — parts per million
REL — recommended exposure limit
TWA — time-weighted average
TLV — time-limited value
UEL — upper explosive level

UFL -- upper flammable level

	LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
ı	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19.50%	10 ppm	50 ppm	
	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
	,	2.4.0	1	-	1 .7 9/4

6 1

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	6	20.7	0	2	1224
	2	0	20.5	0	3	1234
	3	0	20.5	0	4	1244
	4	0	20.8	0	6	1254
Well Head	1	0	20.7	0	2	1224
	2	٥	20.5	0	3	1234
	3	0	20.5	0	4	1244
	4	6	20.8	0	6	1254
Sampling Location	1	0	20.7	U	2	1224
	2	O	20.5	0	3	1234
	3	0	20.5	0	4	1244
	4	0	20.8	0	6	1254

DATE:

**WELL # WW 22** 

**NOTES TAKEN BY:** 

- Arrived onsite at 1210

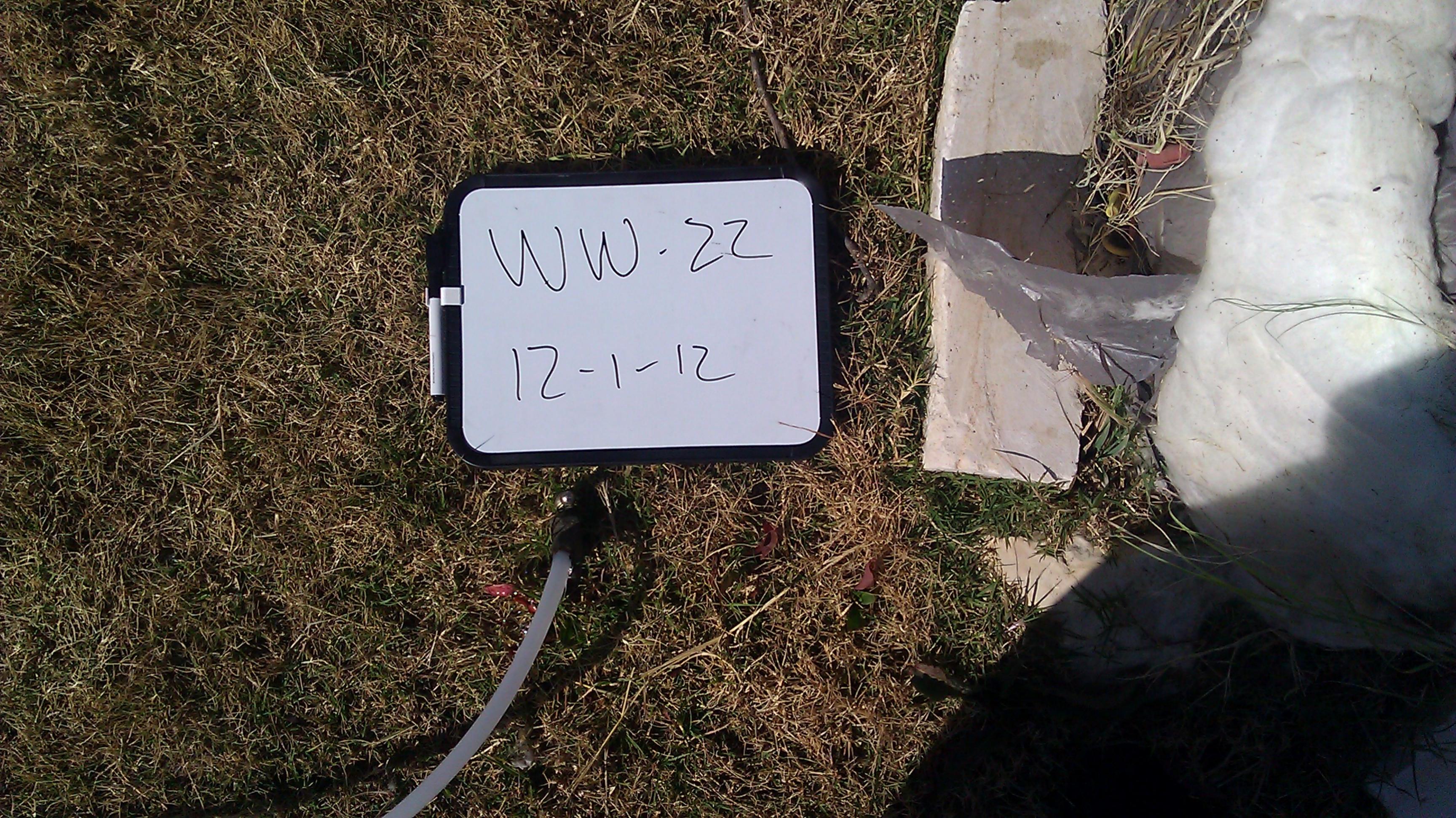
-Began purging at 1218, used tubing to purge due to spigot being broken Purged 37.5 gallons

-Sampled at 1300



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5 Reli	3 Relir	1 Relic									(A (3)												Accutest Sample #		Sampler(s) Name(s)	Phone #	Gabrie	Project Contact	Staffo	4800 Sugar Grove Blvd., Suite 390	Street Address	Earth	Company Name			
Relinquished by	Relinquished by Sampler:	Relinquished		Emen		2	<u> </u>		5 &												1	w			r(s) Nai	# 251	eia Fio	Contac	1	ugar	ddress	on C	ny Nam	₽		AC
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1		1	ow eac			mmer	EDT1 (	11	ommer									V				6	# of bottles					sse		ormatic		xas		2	FAX:	55
	7	1	t time	2 2	Q	Commercial "C"	REDT1 (Level 3+4)	FULT1 ( Level 3+4)	Commercial "A" (Level 1)	0		-					1					×	HCI NaOH	-						Billing Information ( if different from Report to) Company Name					TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	10165 Harwin Dr. Ste. 150 Houston TX 77036
C	4 P	N Z	samp	Commercial "C" = Results + QC & Surroga	Commercial "A" = Results Only		3+4	1	(Leve	Data Deliverable Information		1	1			1	0			F	1		ZA/NaOH HNO3	_	85					ifferent				A.	1-4770	X 770
Custody Seal#	Relinquished By:	2	les ch	Sa .C.	"A" IBI			į	2 3	liverab			-			/			t				H2SO4	Number of preserved Bottles		State	1	1		from						55
Seal #	hed By:	ned by:	ange I	= Resu	= Resu		,			le Infor													NONE DI Water	preserve						Report						
			osses	15 + QC	ts Only		l			mation													MEOH	d Bottles						0						
			sion,	& Summ				Other	TRRP EDD Format	ľ		-	-		/		-						NaHSO4 ENCORE	-		diz				8			1			
N E		1	Includ	Commercial "C" = Results + QC Summary  Commercial "C" = Results + QC & Surrogate Summary					mat	-				-	1		-			-	F		OTHER	1			_	_	-	1_	Ш				Acc	H
Intact Not intact			ing co	Summa				1				+	-	1	-	-	-	-	-		-	K	BTEX		60B Ethane,	Ethe	ne. I	sob	uta	ne. N	leth:	ane.			Accutest Quote #	FED-EX Tracking #
70			urier d	2	_							-	-	1			_		-		-	×	Propa	ne	by RSK	-175									Jote #	acking #
Preserved where applicable	0	-	Sample Custody must be documented below each time samples change possession, including courier delivery.									-	1																	_				70		
d where □	Date Time:	Date 1 lime											/			L	-	_				-								_		_	_	Requ		
applicat								-				L,	4	<u> </u>			-	_						_					<u> </u>					quested		
6										Comn		1							L									1								
	Received By:	2								Comments / Special Instructions	1																							Analyses	Accutest Job #	Bottle Order Control #
	ed By:	ad by:								Speci																								yse	Job#	der Con
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Coo					Œ								111111	-																	7.1	Marie E.				
Cooler Temp.				Ň						100	-												Ş		ת	So	LIC	ç		WS	GW	2		M		
P																							LAB USE ONL		FB-Field Blank	SOL - Other Solic	LIQ - Other Liquic	ED-Sedim	SL- Sludge	SW - Surface Wat	GW - Ground Wat	Danker	2.0	Matrix Codes		
			1					=															ON L		Blank	er Solic	Liqui	alment M	dge	be Wat	nd Wat	S .		odes		







### Environmental Challenges BUSINESS SOLUTIONS

 $F = -i d_1$ 

**Groundwater Sampling Record** 

WELL No.	WW #21	OWNER	Kirk & Brend	ADDRE da Vannewkrik	322	S. Ridge	Oak Ct.	DATE / 30/12
SAMPLEID	WW21- Va.	n-113	012		ER NAME			,
SAMPLE TIME		10		FIELD	CONDITIONSWEATHER	50	@ 15	-20
					7		-	
-								
Well Cond	lition (circle one)			Well Purging			•	
Pump operati	ng yes	no		Pumping rate	gallons/m	inute		
Owner Prese	nt yes	110		Volume pumped	25 gallons			
Sampled Wat	ter Treated yes	no		Clarity	Very Cloor	Other obse	ervations	
TIME 24:00 hr	CUMULATIVE VOLUME	Temp °C	pH S.U.	Conductivity	DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
He 16:		May as I	Windows (		200000000000000000000000000000000000000	ME I		PURGE START
18 35	.5	18.64	8.22	2-43	10,17	-42	2.0	No Odur
1676	3.0	18.50	8.15	2-44	5.89	-27	0.0	NoOdur
1819	4.0	18.32	8.13	2.44	5.33	59	0.0	No Oder
1650	5.0	17.97	8.12	2.45	4.57	80	0.0	No Odur
1655	60	18.18	8.15	2.44	3.39	83	0,0	No Odus
1400	7.0	15.03	8113	2.45	3-36	87	0.0	Noodu
1205	6.0	17.69	8-11	2-41	3.31	91	90	NoOdur
						ļ	·	
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r = 6

Well ID:	WW #21
Owner:	Kirk & Brenda Vannewkirk
Address:	322 S. Ridge Oak Ct.
Date:	11/30/12

43 4 1

LEL -- lower explosive level
LFL -- lower flammable level
NIOSH -- National Institute for Occupational
Safety and Health
O2 -- oxygen
OSHA -- Occupational Safety and Health
Administration
ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average
TLV -- time-limited value
UEL -- upper explosive level
UFL -- upper flammable level

	LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 mln	35 ppm	
	LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	- I
	5%	19.50%	10 ppm	50 ppm	
#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
1	09	20.9	0	1	1610
2	0	20,9	0	1	1615
3	0	20.4	0		1620
4	0	20-9	0	)	1625

	- 1	5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	09	20.9	0	1	1610
	2	0	20,9	0	1	1615
	3	0	20.9	0	1	1620
	4	0	20-9	0	)	1625
Well Head	1	209	20.9	0	1	1610
	2	0	20,9	0	1	1615
	3	0	20-9	0	1	1620
	4	0	20.9	0	1	1625
Sampling Location	1	20.9	120.9	0	1	11010
	2	0'	20.9	0	1	1615
	3	0	20.9	0	1	1620
	4	0	20-4	0	1	1625

DATE: 11/30(12

WELL# WW 21

NOTES TAKEN BY:  $J \mathcal{B}$ 

onsite \$555 pursing well



PAGE OF

Relinquished by: Date Time:	Relinquished by Sampler: Date Time:	Relinquished by Sampler: Date Time:	100	Emergency & Rush T/A data available VIA Lablink	1 Day EMERGENCY	2 Day RUSH	4 Day RUSH		X Standard	Turnaround Time (Business days)				C.X.						WW211-10-113012	Accutest Field ID / Point of Collection		Sampler(s) Name(s)  Sampler(s) Name(s)  Phone #	Phone # Fax #	Gabriela Floreslovo	Stafford TX 77477	4800 Sugar Grove Blvd., Suite 390 City State Zip	Siteet Address	EarthCon Consultants, Inc.	Company Name	Client / Reporting Information	=	ACCUTEST
Received By:	Received By:	Received By:	Sample Custody n	182760	)				Approved By (Accutest PM): / Date:											11-30-12 1710	Date Time	СоЯв	Project Manager	Client Purchase Order#	Clack	Project #	City	Street	Third Quarterly Well Sampling, Parker County, Texas	Project Name:			
			nust be documer													1	11/4	)		970 0	Sampled By	Collection	Ą	C		St	State Co		ing, Parker Cou		Project Information	TEL. 713-27	10166 Harwin
	7		sted below each tim	0.0	[	Commercial "C"	REDIT ( Level 3+4 )	Commercial "B" ( Level 2)	Commercial "A" (Level 1)						1					50 3 1	Matrix bottles H		Attention:	City		Street Address	Illing Information ( if o		inty, Texas		ormation	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	10165 Harwin Dr. Ste. 150 Houston, TX 77036
Custody Seal #	Relinquished By:	Relinquished By:	Sample Custody must be documented below each time samples change possession, including courier delivery.	Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Surroga	Commercial "A" = Results Only	9	3+4) [ Other		×	Data Deliverable Information											NaOH ZA/NaOH HNO3 H2SO4 NONE DI Water MEOH TSP NaHSO4 ENCORE	Number of preserved Bottles		State Zip			Billing Information (if different from Report to) Company Name					71-4770	אגחדר אידי
☐ Intact Pri ☐ Not intact			ciuding courier de	QC & Surmary QC & Surmgate Summary		_		# T					/							×	BTEX Butan Propa	e, I	60B Ethane, by RSF	Ethe (-175	ne, Is	obu	tane,	Met	than	e,		Accutest Quote #	FED-EX Tracking #
Preserved where applicable	Date Time:	Date Time:	livery.							Co														all-V							Requested		
On ice C	Received By:	Received By:								Comments / Special Instructions	/	/																			Analyses	Accutest Job #	Bottle Order Control #
Cooler Temp.																					LAB USE ONLY		FB-Field Blank	SOL - Other Solid WP - Wipe	LIQ - Other Liquid	SED-Sediment	SW - Surface Water SO - Soil	WW - Water	DW - Drinking Water		Matrix Codes		









### Environmental Challenges BUSINESS SOLUTIONS

WELL No.	WW #20	OWNER	Dennis	Huffman	DRESS	127 N. Ridge	Oak Ct.	DATE (2/1/12
SAMPLEID	WWZO - Hut	- 120	112		MPLER NAME 38,	Stt. Ru		- / /
SAMPLE TIME				FIE	LD CONDITIONS/WEATH	Stt, Rm	14. 54	e F
Owne	r used spaint	Kl-ers !	to pr	rze				
Well Cond	lition (circle one)			Well Purging				
Pump operati		no		Pumping rate	U/A gallon	s/minute		
Owner Prese	nt yes	no		Volume pumped	N/A gallon	s		
Sampled Wat	er Treated yes			Clarity	chear		ervations Sc	ifur ador
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conductivity	DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
0910	0			BULL BUT SWA	M. Marine	I I I	Province in	PURGE START
0912	1.5	20.71	8.78	1.04	5.50	-255	10.1	Slight Sulfus
0914	2.5	20.93	6.85	1.03	5.01	-258	6.5	
0910	3.0	20.93	8.83	1.03	4.87	-259	5.2	
0918	3.5	20.93	6.84	1.03	4.42	-259	4.9	
0922	4.5	20.96	8.83	1.03	1.61	-283	4.0	
0974	5.0	20.95	8.84	1.03	1.51	-284	3.3	
0920	5.5	20,96	8.83	1.07	1.49	-284	3.0	
-								
<u> </u>	-							
-								
-							-	
							-	



Well ID:	WW #20	
Owner:	Dennis Huffman	
Address:	127 N. Ridge Oak Ct.	
Date:		

40 8 . .

LEL -- lower explosive tevel
LFL -- lower flammable level
NIOSH -- National Institute for Occupational
Safety and Health
O2 -- oxygen
OSHA -- Occupational Safety and Health
Administration
ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average
TLV -- time-limited value

UEL – upper explosive level UFL – upper flammable level

1	0	70.9	0	0	0857
	0	20.9	0	0	0847
	Value % LEL	Value %	Value ppm	Value ppm	Time 24;00 hr
	5%	19.50%	10 ppm	50 ppm	
	LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	15%	22%	10 ppm/10 mln	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
L	10 % LEL	19.50%	10 ppm	35 ppm	
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9	0	0	0847
	2	O	20.5	0	0	0857
	3	0	20.4	G	ł	0407
	4	0	ZOA	0	1	0917
Well Head	1	0	20.9	0	0	0847
	2	0	209	0	0	0857
	3	0	20.9	0	1	0907
	4	0	20,4	٥		0917
Sampling Location	1	0	20.9	0	0	0847
	2	0	20.9	0	0	0857
	3	٥	20.9	G	1	0907
	4	0	20.9	Q	(	0917

DATE:

WELL # WW 20

**NOTES TAKEN BY:** 

onsite 0840

meet Mr. Huffmon, he asked if we could run Sprinklers instead of wooting down the hill. Started sprinklers @ 0540 will turn off at 0910



PAGE OF

Relinquished by:	Relinquished by Sampler: Date	Relinquisfied by Sampler: Date	11/	Emergency & Rush T/A data available V/A Lablink	1 Day EMERGENCY	2 Day RUSH	3 Day RUSH	4 Day RUSH	X Standard	Turnaround Time ( Business days)				0				WW25-H 12011	Accelest Field ID / Point of Collection		281-201-3513 Sampler(s) Name(s) SH Phone #	Phone # Fax #	Project Contact E-mail	, k	4800 Sugar Grove Blvd., Suite 390  City State Zip	Street Address	EarthCon Consultants, Inc.	Company Name	Client / Reporting Information	v.	S S L S C S C S C S C S C S C S C S C S
Date Time: Received By:	Date Time: Received By:	Date Time: Received By:	Sample Custody	i - nara					Approved By (Accutest PM): / Date:									3 620 21/1/61 6	Date Time	Col	# Project Manager	Client Purchase Order#	Project #		City	Street	Third Quarterly Well Sampling, Parker County, Texas	Project Name	A CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR		
7		7	Sample Custody must be documented below each time samples change pos	Com	Comr	Commercial "C"	REDT1 (Level 3+4)	FULT1 (Level 3+4)	Commercial "B" (Level 2)	Data					X	1		173 4E 6 X	Sampled By Matrix bottless E D N N N N N N N N N N N N N N N N N N	Collection	Attention:	City	Off day (Moringa)	Stroot Address	State Company Name		ling, Parker County, Texas		Project Information	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	10165 Harwin Dr., Ste 150 Houston, TX 77036
Custody Seal # Infact Not infact	Relinquished By:	Relinquished By:	amples change possession, Including courier delivery.	Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Surrogate Summary	Commercial "A" = Results Only		[			rable Informa								X	ZANaOH HNO3 H2SO4 NONE DI Water MEOH TSP NaHSO4 ENCORE OTHER BTEX	Number of preserved Bottles	60B	State Zip			erent from Report to)						
			courier delive	nmary				1					/	À				×	Butan Propa	e, E	Ethane, by RSK	Ether	ne, Is	obu	tane,	Met	han	e,		Accutest Quote #	
Preserved where applicable	Date Time:	Date Time:	Ŋ.							0										1						***			Requested		j
On Ice	Received By:	Received By:								Comments / Special Instructions																			d Analyses	Accutest Job #	
Cooler Temp.																			LAB USE ONLY	ľ	FB-Field Blank	SOL - Other Solid WP - Wipe	LIQ - Other Liquid	SED-Sediment	SW - Surface Wate	GW - Ground Water WW - Water	DW - Drinking Water		Matrix Codes		



PAGE OF

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Relinquished by:	Relinquished by Sampler:	Relinquished by Sampler:	The second second	Emergency & Rusti I/A data available VIA cability	1 Day EMERGENCY	2 Day RUSH	S Day AUST	The second		X Standard														211261 0112	Sample # Field ID / Point of Collection		Sampler(s) Name(s) Ph		Phone # Fax #	Cabriela Elorasiovo	ΤX	City State	Po Super Crown Blad Suite 390	EarthCon Consultants, Inc.	Company Name	Client / Reporting Information	
Date Time:	Date Time:	hala lime;		11:2 097			*****			Approved by (Accutest PM): / Date:														12/1/12	Date		Phone # Project Manager		Client Purchase Order #	Floed #	77477	Zip City		Third Quarte	Project Name:		
Received By:	Received By:	1 Received By:	Sample Custody must be documented below each time samples change poss	E						unest PM): / Date:														JT0	Time Samp	Collection			Order#			Sk		Third Quarterly Well Sampling, Parker County, Texas		Pro	TI
		1	documented below e			Comm				Commi												3		5 6w 6	Sampled By Matrix bottles		Attention:		City	On the contract of	Circuit Address	State Company Name	Dulling	rker County, Texas		Project Information	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com
Custody Seal #	Relinquished By:	Relinquished By:	ach time samples ch	Commercial "C"	Commercial "A" = Results Only	Commercial "C"	NEDIT ( Level 5+4)	( Level 3+4 )	FULT1 (1 aval 3+4)	Commercial "B" (Level 2)	Data Delivera													*	HCI NaOH ZA/NaOH HNO3 H2SO4	Number of prese			State			Company Name	tion ( If different from				K: 713-271-4770 .com
		shed By:	hange possession, in	Commercial "C" = Results + QC & Surrogate Summary	= Results Only					EDD Format	Cara Deliveració illioniacon	all Information					/								NONE DI Water MEOH TSP NaHSO4 ENCORE	ved Bottles			e Zip			Neport to)	Panest (a)				
Not intact Prese			ession, including courier delivery.	gate Summary			T		1	Tat .						/	1							×	BTEX Butan Propa	e, E	than			e, Is	obu	tane,	Me	than	e,		Accutest Quote #
Preserved where applicable	Date Time:	Cate ime:	very.								00					A																				Requested	
_ Q	Received By:	2	Darakind By:								Comment of Change Inch action	The Considing		/																						Analyses	Accutest Job #
On Ice Cooler Temp											a described	frictions	/								11											C/I		o			
emp.			and the second										/								-7				LAB USE ONL	4		WP - Wipe FB-Field Blank	SOL - Other Solid	OI - Oil	SED-Sediment	SO - Soil	ww-water	DW - Drinking Wat		Matrix Codes	









### Environmental Challenges BUSINESS SOLUTIONS®

	BUSINESS SUL				Linangaa			mator Gar	ipining Necoru
WELL No.	WW #19	OWNER	Joseph & Re	becca Williams	ADDRESS	32	7 S. Ridge	Oak Ct.	DATE /1/12
SAMPLEID	WW19- Wi	1-120	112		SAMPLER NAME	JB,	SH, Y	h	
SAMPLE TIME	1405				FIELD CONDITION	IS/WEATHER	Sunr	4, 7	7 °F
Well/ Sam	ple Condition (ci <u>rcle</u> o	ne)	(1)	Well Purgin	g		1000	200	
Pump operati		no		Pumping rate		gallons/r	ninute		
Owner Prese	nt yes	(A)	'n	Volume pumpe		gallons			
Sample Wate	r Treated yes	no		Clarity	<u> (1000</u>	<u>14</u>	Other obse	ervations 5	frong Ifor oder
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conducti		DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
1348	0			ist ober					PURGE START
1350	1	21.64	8.66	1.43		.22	-355	0.2	sulfur ador
1352	2	21.60	8.65	1.63		80	-357	0.4	
1354	3	21.57	8.68	1.63		56	-363	0,2	
1350	3.5	21.58	8.63	1.63		16	-363	0.0	
1358	4.0	21.59	8.61	1.62	(	5.94	-363	0.0	
1400	4.5	21.60	8-62	1.63		3.74	-369	0.0	
1402	5.6	21.65	8.64	1.63		5.62	-368	6.0	ļ
1404	5.5	21.64	8.63	1.62	- (	<u>5,53</u>	-348	0,0	
						****			
		L							



LEL

(Calibrated for

0

0

2

3

4

Well ID:	WW #19	
Owner:	Jospeh & Rebecca Williams	
Address:	327 S. Ridge Oak Ct.	
Date:	(21:112	

CO

Time of Reading

1330

1340

LEL -- lower explosive level LFL -- lower flammable level NIOSH - National Institute for Occupational Safety and Health OSHA — Occupational Safety and Health Administration ppm — parts per million REL - recommended exposure limit TWA - time-weighted average TLV -- time-limited value UEL -- upper explosive level

> Location & Coordinates Background

Well Head

Sampling Location

UFL -- upper flammable level

	Methane)	%	ppm	ppm	Time of Reading
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19,50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19,50%	10 ppm	50 ppm	
#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
1	0	20.6	0		1350
2	6	20.7	6	3	1330
3	0	20.9	0	3	1340
4	0	21.0	ಲ	3	1350
1	0	20.7	0	- 1	320
2	G	20.7	Q	3	1336
3	0	20.9	6	3	1340
4	٥	21.0	0	3	1350
1	6	20.9	0		1320

0

H₂S

 $O_2$ 

20.7 20.9 21.0

DATE: 12/1/12

WELL# WW 19

NOTES TAKEN BY:

- Arrived onsite at 1315
- Began purging at 1318
- Sampled at 1405
- Left site a 1410



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Date Time:	Date Time:	Date Time: 160	11-1-16	11 5 69						ays)											-120112 12/1/12	liection Date		Phone # Project Manager	Clent rurglase Order #		E-mail Project #	77477	Zip City	Street	Third Quar	Project Name	on		
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		4	be documente			m r	7.					_						8			150 6	Sampled By Ma		Atte	Ç,	City	Stre		State Con		Parker Coun		Project Information	TEL. 713-271- w	10165 Harwin Dr, Ste 150 Houston, TX 77036
1			ed below each			Commercial "C"	REDT1 (Level 3+4)	FULT1 (Level 3+4)	Commercial "A" (Level 1)												6	# of bottles		Attention			Street Address		npany Name		ıty, Texas		rmation	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	Dr. Ste 150 Hous
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Cooler Temp.											/											LAB USE ONLY		FB-Field Blank	SOL - Other Solid WP - Wipe	AIR - Air	01-01	SL- Sludge SED-Sediment	SW - Surface Water SO - Soil	GW - Ground Water	DW - Drinking Wate		Matrix Codes		











Environmental Challenges BUSINESS SOLUTIONS®

WELL No.	WW #18	OWNER	Thomas & Eli	zabeth Struths	362	S. Ridge	Oak Ct.	DATE 12/2/12
SAMPLE ID	WW18- Str.	1202	12	SAMPL	ER NAME DB.S	14, Rr	$\overline{r}$	. 4
SAMPLE TIME	1150			FIELD	CONDITIONS/WEATHER	Sur	my , 7	3°F
Sam	ww#18 Ww18-5tr- 1150 Ple taken	from	tan K	prior	to tre	atm	ent	
Well/ Sam	ple Condition (circle o	ne)		Well Purging				
Pump operati		- no		Pumping rate	M/A gallons/mi	nute		
Owner Preser	nt ves	no	_	Volume pumped	N/A gallons		/1	ht
Sampled Wat	ter Treated yes	no		Clarity	N/A- gallons	Other obse	ervations S. 1.	ght Ifur dor
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conductivity վեֆ/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
_	0			Raturate a la la la la la la la la la la la la l				PURGE START
1158	_	71,95	8.76	1.72	4.67	-279	2.1	
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Well ID:	WW #18
Owner:	Thomas & Elizabeth Struths
Address:	362 S. Ridge Oak Ct.
Date:	12/2/12

LEL lower explosive level LFL lower flammable level NIOSH National Institute for Occupational Safety and Health		LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
O2 – oxygen OSHA – Occupational Safety and Health		Alarm Level	Alarm Level	Alarm Level	Alarm Level	
Administration		10 % LEL	19.50%	10 ppm	35 ppm	
ppm parts per million REL recommended exposure limit TWA time-weighted average		UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
TLV - time-limited value		15%	22%	10 ppm/10 mln	35 ppm	
UEL upper explosive level UFL upper flammable level		LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9	0	0	1149
	2					
	3					
	4					
Well Head	1	Ð	70.9	0	0	1149
	2					
	3					
	4					
Sampling Location	1	0	20.9	0	0	1149
	2					

DATE: 12/2/12

**WELL # WW 18** 

**NOTES TAKEN BY:** 

Armed onsite at 1145
gas reading taken at 1149
sampled at 1150
parameters taken at 1155



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Relinquished by:	Relinquished by Sampler:	Reinfuliabled by Sampler: Dat		Emergency & Rush T/A data available V/A Lablink	1 Day EMERGENCY	2 Day RUSH	3 Day RUSH	4 Day RUSH	X Standard 5 Day RUSH	Tumaround Time ( Business days)											WW18-Str-120212	Acculest Samples Field ID / Point of Collection		Sampler(s) Name(s)  A  Phone	Phone # Fax #	reslovo	Stafford TX 77477 Protect Contact E-mail		ite 390	EarthCon Consultants, Inc. Street Address	Company Name	Client / Reporting Information		rainodra :
Date Time:	Date Time:	Date Time:	-	11/17 00				Ì	Approved By (Accutest PM): / Date:	N. S. S. S. S. S. S. S. S. S. S. S. S. S.						ű.	1				2 12/2/12	Date		e# Project Manager	Client Purchase Order#		77 Project #	City		Third Quarter	Project Name:			
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			be documer						No.												20	Sampled By		2	0		Ω	State	0	Parker Cou		Project Information	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	10165 Harwin
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Environmental Challenges
BUSINESS SOLUTIONS ®

WELL No.	WW #15	OWNER	Stephen &	Carol Hurst	ADDRESS	241	11 Cactus	Rio Ln.	DATE 2/2/12
SAMPLE ID	WW15- Hur	120	212		SAMPLER	NAME JB	SH.	pm	, -,
SAMPLE TIME	1128			f	FIELD CON	NDITIONS/WEATHER	Sur	1.730	F
								7 '	
	/								
Well/Samp	ole Condition (circle or	ne)		Well Purging	9				
Pump operati	ng (yes)	no		Pumping rate	_	gallons/mi	inute		
Owner Preser	nt yes	no		Volume pumped		120 gallons			
Sampled Wat	er Treated yes	(1)		Clarity	_	lear	Other obse	rvations	
	·			Ciality		T KOV			Ifur odor
TIME	CUMULATIVE VOLUME	Temp	pН	Conductiv	rity	DO	ORP	Turbidity	ODOR/COLOR/
24:00 hr	(gal)	°C .	Ś.U.	(p.S/cm)	)	(mg/L)	(mV)	(NTU)	REMARKS
1114	0	100000							PURGE START
11160	1	7059	8.75	1.19		092	-355	0.0	suffer odor
1118	2	20.43	8.79	1.19		0.67	-366	0.0	
1170	3	20.39	8.79	1-19		0-50	-372	0.0	
1122	3	20,41	8.79	1.19		1.07	~377	0.0	
11124	5	20.44	8.79	1.19		1.00	-379	0.0	
1126	6	20.44	8.79	1-19		0.92	-381	0:0	
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2017

LEL (Calibrated for

Methane)

Well ID:	WW #15
Owner:	Stephen & Carol Hurst
Address:	2411 Cactus Rio Ln.
Date:	12/2/12

CO

ppm

Time of Reading

LEL – lower explosive level
LFL – lower flammable level
NIOSH - National Institute for Occupational
Safety and Health
O2 oxygen
OSHA Occupational Safety and Health
Administration
ppm parts per million
REL recommended exposure limit
TWA time-weighted average
TLV time-limited value
UEL upper explosive level
UFL – upper flammable level

Location & Coordinates
Background

Well Head

**Sampling Location** 

3

	%				
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19.50%	10 ppm	50 ppm	
#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
1	(2)	20.9	B	0	1050
2	0	20.9	0	0	1050
3	0	207	0	l	1100
4	0	20-7	0	1	1105
1	C	20.9	0	Ó	105C)
2	0	2017	0	0	1055
3	0	20,7	0	1	1100/
4	0	20,7	0	l	1105
1	(3)	209	B	0	1050

H₂S

ppm

DATE:

**WELL # WW 15** 

**NOTES TAKEN BY:** 

Pursing Stort 1644 = Sampled at 1128



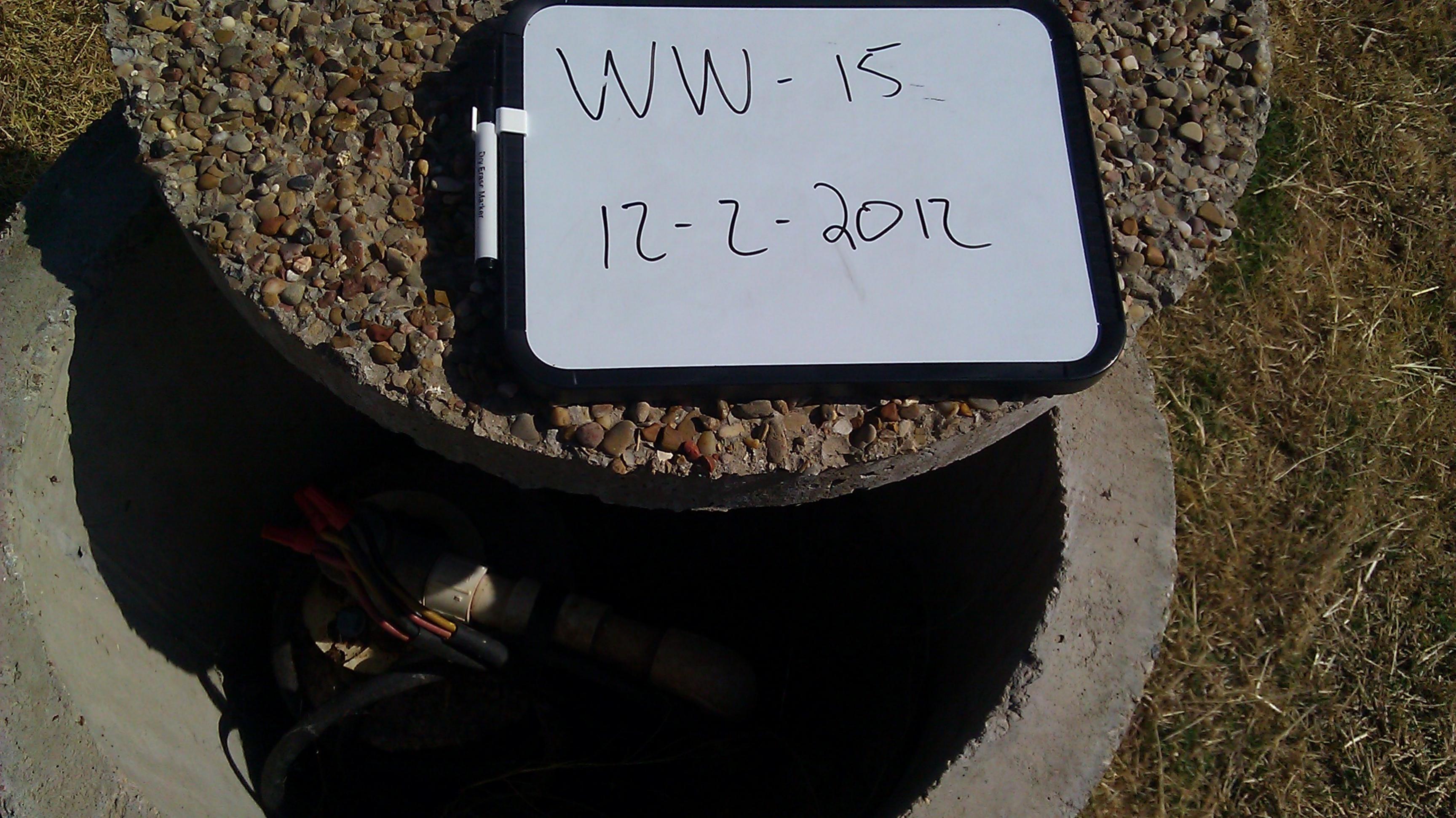
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### Environmental Challenges BUSINESS SOLUTIONS®

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Clarity   Cloudy   Other observations   Sulfur odor	Owner Preser	nt yes	no		Volume pumped	130 gallons		-1	
TIME 24:00 hr (gal) C S.U. PH Conductivity (my/L) (my/L) (NTU) ODOR/COLOR/REMARKS  1032 0 PURGE START  1034 1 71.06 8.50 1.96 9.96 -312 0.6 Sulful addlered (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L) (my/L)	Sampled Wate	er Treated yes	No	-	Claritv	Cloud	Other obse	rvations ~	ng
24:00 hr (gal) °C S.U. MS/cm) (mg/L) (mV) (NTU) REMARKS  1037 0 PURGE START  1034 1 71.06 8.50 1.96 9.96 -312 0.6 Sulful adol  1036 2 70.63 8.51 1.97 9.28 -332 0.0  1038 3 70.67 8.51 1.99 8.89 -341 0.0  1640 4 70.57 8.51 1.99 8.60 -347 0.0					J,	9.0009		501	tur odor
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Well ID:	WW #14A
Owner:	Stephen & Carol Hurst
Address:	2411 Cactus Rio Ln.
Date:	

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1007

1017

1027

LEL lower explosive level
LFL lower flammable level
NIOSH National Institute for Occupational
Safety and Health
O2 – oxygen
OSHA - Occupational Safety and Health
Administration
ppm – parts per million
REL recommended exposure limit
TWA time-weighted average
TLV – time-limited value

Location & Coordinates Background

Well Head

Sampling Location

1

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3

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UEL – upper explosive level UFL – upper flammable level

	(Calibrated for Methane)	O ₂ %	H₂S ppm	CO ppm	Time of Reading
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
•	5%	19.50%	10 ppm	50 ppm	
#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
1	0	20.9	0	0	1007
2	0	20.7	٥	0	1017
3	0	20.7	6	2	1027
4	0	20.7	0	ے	1037
1	0	20.9	8	0	1007
2	0	20.7	0	0	1017
3	0	20.7	O	2	1027
4	0	20.7	0	2	1037

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20.9

20.7

20.7

70.7

DATE: 12/2/12

WELL# WW 14A

NOTES TAKEN BY: JBicks Kewit

onsite 0955

water on 1002

lowflow @ 1032

Sample @ 1047



PAGE __ OF __

College   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report   Report	ח	ω	4		- 101	-			1000	Ten								П			S &	7	∪ S _a	28	ျှစ္တ	P	S	Ω <b>&amp;</b>	Sh	1 0	T	1		力
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### Environmental Challenges BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

WELL No.	WW #13	OWNER	Tom	Struths		7 S. Ridge	Oak Ct.	DATE 12/2/12
SAMPLE ID	WW13 - SF	c - 12	0212		PLER NAME	54.	pn	
SAMPLE TIME	1300			FIEL	D CONDITIONS/WEATHER	Sunn	rn 4, 79°	F
Well/ Sam	ple Condition (circle o	ne)		Well Purging				
Pump operation		no		Pumping rate	gallons/m	ninute		
Owner Preser	nt yes	no		Volume pumped	300 gallons			
Sample Wate	r Treated yes	no		Clarity	clear	Other obse	ervations Sul	ong Ifur do/
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conductivity (pS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
1235	0	HER MIN	3000 F	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	25 Bank 167	2 15 May 1		PURGE START
1238		20.45	8.38	1-94	7.14	-340	0.5	
1241	2_	20.89	8.30	1.95	1.54	-378	0.0	
1244	25	20.40	6.32	1.92	0,43	-352	0,0	
1247	3.0	20.74		1.42	0.47	-350	0.0	
1250	3.5	20.86	8.42	1.43	0.56	-352	1-1	
1253	4.0	20.85	8.36	1.42	0.50	-348	1.8	
1256	4.5	20.79	8.45	1.42	0.45	-354	2.1	
1259	5.0	28.62	8.43	1.92	0.40	-354	2.4	
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Well ID:	WW #13
Owner:	Tom Struths
Address:_	367 S. Ridge Oak Ct.
Date:	17.12.117

LEL – lower explosive level
LFL – lower flammable level
NIOSH – National Institute for Occupational
Safety and Health
O2 – oxygen
OSHA – Occupational Safety and Health
Administration

ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average
TLV -- time-limited value
UEL -- upper explosive level
UFL -- upper flammable level

	LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19.50%	10 ppm	50 ppm	
ŧ	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
	^	206			1202

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9	0	0	1207
_	2	0	70.9	0	1	1247
	3	0	21.1	0	1	1227
	4	٥	21.1	0	1	1237
Well Head	1	0	20.9	0	0	1207
	2	0	21.1	0	1	1217
	3	0	21.1	0	1	1227
	4	0	21.1	0	ł	1237
Sampling Location	1	0	20.9	O	0	1207
	2		20.9	0		1217
	3	O	21.1	0	1	1227
	4	0	21.1	0	ı	1237

DATE: 12/2/12

WELL # WW 13

NOTES TAKEN BY: JBIUSKewit

0.1.3

Arrived onsite at 1200
Began purging at 1205
Began lowflow at 1235
Sample at 1300



PAGE / OF /

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Phone:

Fax:

Email: 4	Alan Hornackie @ Workherfordlabs. com		<u>ر</u> و د	AC G		mail@isotechlabs.com	labs.com
Sam	Sample Description		Nor -	Non-	Non-So top of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the con	10 60	
Container Number	Sample Identification	Date Sampled	595 md	C. T. N	D. T. Of M	Comments	
$\leftarrow$	WW13-5tr-120212	12/02/12	X	4	K		
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Chai	Chain-of-Custody Record						
	Signature			Company	any	Date	Time
Relinquished by	by Whitenh		Sarthcon	hoon		18/2/12	1335
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Received by







### Environmental Challenges BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

WELL No.	3884 444	OWNER		d Margaret	ADDRESS		ON Distr		DATE
SAMPLE ID	WW #11			erson	SAMPLER		3 N. Ridge		114/1/16
SAMPLE TIME	WWII - And-	12011	-		FIELD CON	NAME 13. SI	+ m		. (
SOME PE LIME	0823						<u>Part</u>	by Clou	dy, 55°F
								,	
Well/ Sam	ple Condition (circle o	ne)		Well Purgin	 ng				
Pump operati		no		Pumping rate	-	gallons/r	ninute		
Owner Prese	ent yes	no		Volume pumpe	ed be	130 gallons			
Sampled Wa	ter Treated yes	no		Clarity		lear	Other obse	ervations No	odol
TIME	CUMULATIVE VOLUME		pН	Conducti		DO	ORP	Turbidity	ODOR/COLOR/
24:00 hr	(gal)	°C	S.U.	<b>M</b> S/cm	n)	(mg/L)	(mV)	(NTU)	REMARKS
0811	0	12 -			KEET!	1 1	100	2 6	PURGE START
0913	1	18.63		0.944		4.31	182	2.8	No odol
0817	3	14.54		0.949		3.45	189	2.4	
0419	4	18.51	8.66	6.945		3.41	194	2.1	
6821	5	18.50		0.94		7.34	196	7.0	
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**BUSINESS SOLUTIONS®** 

Well ID:	WW #11	
Owner:	Harry and Margaret Anderson	
Address:	367 N. Ridge Oak Ct.	
Date:	17/1/17	

LEL. -- lower explosive level
LFL -- lower flammable level
NIOSH -- National Institute for Occupational
Safety and Health
O2 -- oxygen
OSHA -- Occupational Safety and Health
Administration
ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average

TLV -- time-limited value UEL – upper explosive level UFL – upper flammable level

LEL (Callbrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
Alarm Level	Alarm Level	Alarm Level	Alarm Level	
10 % LEL	19.50%	10 ppm	35 ppm	
UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
15%	22%	10 ppm/10 min	35 ppm	
LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
5%	19.50%	10 ppm	50 ppm	
Value % I FI	Value	Value	Value	Time 24:00 hr

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9	U	0	0741
	2	0	20.8	0	t	0751
	3	0	20.8	6	t	0901
	4	0	20.8	0	2	0411
Well Head	1	0	20.9	0	l	0741
	2	O	20.8	0	1	0751
	3	0	20.8	0	1	0801
	4	0	20.8	0	2	0811
Sampling Location	1	0	20.9	0	0	0741
	2	0	20.8	a	1	0751
	3	O	20.8	ଣ	1	0801
	4	6	20.8	O	2	0811

DATE: 12/1/12

WELL # WW 11

NOTES TAKEN BY: J Brus Kew. The

Arrived unsite 0735
Began purging at 0740
Began low How @ 0811
Sampled @ 0823



PAGE ___OF __

Relinquished by: Date Time:	Relinquished by Sampler: Date Time:	Relinquished by Sampler:	16.2)	Emergency & Rush T/A data available VIA Lablink	1 Day EMERGENCY	2 Day RUSH	3 Day RUSH	5 Day RUSH	X Standard	Turnaround Time ( Business days)						Y		ww11-And-120112	Acculast Field ID / Point of Collection	Company of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the sta	Sampler(s) Name(s) Phone #	Phone # Fax # 281-201-3513	Gabriela Floresiovo	Project Contact E-mail	7	4800 Sugar Grove Blvd., Suite 390	Street Address	EarthCon Consultants, Inc.	Company Name	Client / Reporting Information		
Received By:	Received By:	Received By:	Sample Custody must be docun	097260					Approved By (Accutest PM): / Date:									12-1-12 6823 1715	Date Time Sampled By	Collection	Project Manager	Client Furchase Order#		Project #		CIV	Sireet	Third Quarterly Well Sampling, Parker C	Project Name:	Project	TEL 71:	10165 Har
CUstody Seal #	Relinquished By:	Relinquished By:	Sample Custody must be documented below each time samples change possession, inc	Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Surrogate Summary	Commercial "A" = Results Only	Commercial "C"	REDT1 (Level 3+4)	vel 2)		Data Deliverable information						X V Z		15w 6 x	Matrix  bo ** of  HCI  NaOH  ZA/NaOH  HNO3  H2SO4  NONE  DI Water  MEOH  TSP  NaHSO4  ENCORE  OTHER	Number of preserved Bottles	Attention:	City Space 24	obje.	Street Address		Billing Information ( If different from Report to)		County, Texas		Project Information	TEL. 713-271-4700 FAX: 713-271-4770 www.accutest.com	rwin Dr. Ste 150 Hauston. TX 77036
Intact Preserved v	Dat	Dat	ier delive	ate Summary						Design of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last			1	/				* *	BTEX Butan Propa	e, E	thane			lsob	utai	ne, M	leth	ane,		Re	Accutest Quote #	FED-EX Tracking #
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Cooler Temp.						1		17-1100											LAB USE ONLY		rb-ried stank	SOL - Other Solid WP - Wipe	LIQ - Other Liquid AIR - Air	SED-Sediment OI - Oil	SL-Sludge	SW - Surface Water	GW - Ground Wate			Matrix Codes		

Send Data	and invoice to					4		
Name:	Name: ALAN KORNACKI	Project:	Third Quarter Well	orter wa	11 Sampling	20.	Isotech Laboratories, Inc.	nc.
Company:	ATORIES		Parker POUNTY	PRODEY		35	1308 Parkland Cour	-
Address:	Address: 5200 N SAM Houston Parenty	Sampled by:	28	SH R	in	100	Champaign, IL 61821	-11
la.	suite 500 Houston, TX 77086		10 V				Phone: 217-398-3490	ਰ
Phone:	832-515, 5137		_	Analyses		hed	Fax: 217-398-3493	
Fax:			<u>~</u>		CON	·£	www.isotechlabs.com	13
Email:	Alan Hornackie & Weatherfood labs. com	COM		HC C	Mary Cu	NZ	mail@isotechlabs.com	<del>iš</del>
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Environmental Challenges
BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

WELL No.	WW #10 I	OWNER	Devyn	Hayley	1	75 Old R	anch	門 /1/2
SAMPLE ID	WW10 - Ha	m - 12	0212	SAMPLE	RNAME JIS, S	H M	<u> </u>	, ,
SAMPLE TIME	0815	7		FIELD CO	ONDITIONSWEATHER	Partl	4 Cloud	4. 63°F
Sa Le	www.o-Ha 0815 mpted tak + water r	en fi	or S	tank pri	or to the fore take	reations	ment a pas	aneter
	ading							
Well/ Sam Pump operati	ple Condition (circle o	ne)		Well Purging Pumping rate	<b>₩</b> gallons/mi	nute		
Owner Prese	nt (yes)	no		Volume pumped	N/A gallons			
Sampled Wa		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		Clarity	gallons	Other obse	ervations SUI	fur odo/
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conductivity	DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
~	0			TORREST STEELS				PURGE START
6823	NIA	19.70	8.86	1.14	8-66	-239	4.8	
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 Well ID:
 WW #10

 Owner:
 Devyn Hayley

 Address:
 175 Old Ranch

 Date:
 12/1/2

BUSINESS SOLUTIONS ®	Date:

LEL – lower explosive level LFL – lower flammable level NIOSH – National Institute for Occupational Safety and Health		LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
O2 oxygen OSHA Occupational Safety and Health		Alarm Level	Alarm Level	Alarm Level	Alarm Level	
Administration		10 % LEL	19.50%	10 ppm	35 ppm	
ppm parts per million REL – recommended exposure limit TWA – time-weighted average		UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
TLV time-limited value		15%	22%	10 ppm/10 min	35 ppm	
UEL upper explosive level UFL upper flammable level		LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.9	O	0	0803
-	2			, i.e.		
	3					
	4					
Well Head	1	0	20.9	0	0	0803
	2					
	3					
	4					
Sampling Location	1	0	20.9	0	6	0883
	2					
	3					
	4					

DATE: 12/2/12

WELL # WW 10

NOTES TAKEN BY: JB Ius Kaus The

Arrived onsite at 0800 Turned water on at 0802 Sampled @ 0815

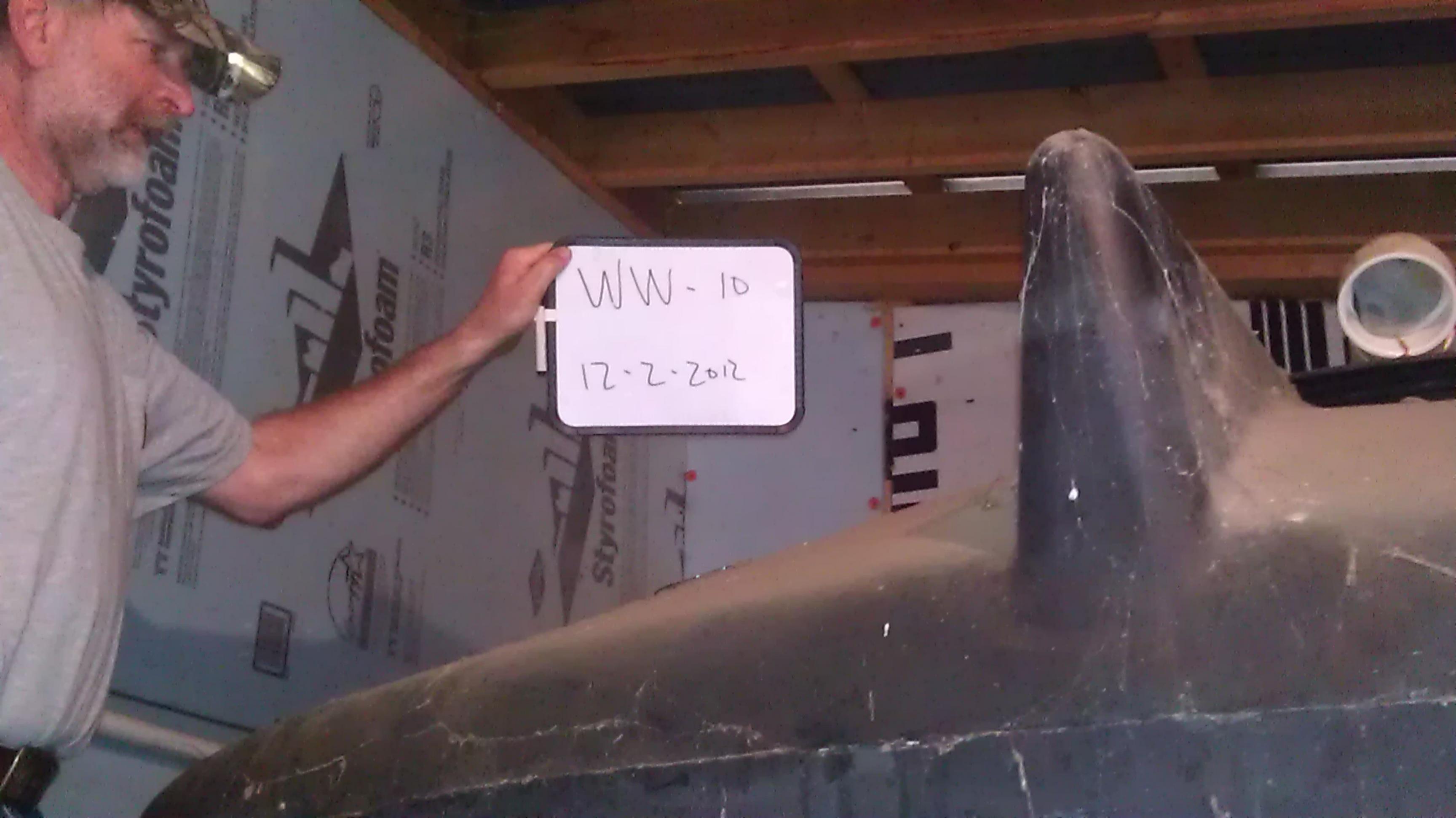


PAGE / OF /

10165 Harwin Dr, Ste 150 Houston, TX 77036 TEL. 713-271-4700 FAX: 713-271-4770 FED-EX Tracking # Bottle Order Control #

Accutest Quote # Accutest Job #

Clier	nt / Reporting Information			Project	Informa	tion				0,50	J.	5341		ALF					Req	ues	ted	Ana	lyse	s			Matrix Codes
Company Name		Project Nam	E					1.																			
EarthCon Cor	nsultants, Inc.	Third Qua	teriy Well Sampl	ng. Parker (	County.	Texas											ane										DIM Delate Man
Street Address		Street	,														<b>#</b>										DW - Drinking Water GW - Ground Water
4800 Sugar G	rove Blvd., Suite 390				Billing	Informati	on ( i	f diffe	rent	from I	Repo	ort to)					Ž					3					WW - Water SW - Surface Water
City	State Zi	p City		State	Compan	y Name		-3-									ane										SO - Soil
Stafford	TX 774														i		Ĭ [			-							SL- Sludge SED-Sediment
Project Contact	E-mail	Project #			Street A	ddress											Ethene, Isobutane, Methane										OI - Oil
Gabriela Flore	eslovo				2000							40			- 8	1	ue,										LIQ - Other Liquid AIR - Air
Phone #	Fax #	Client Purch	se Order#		City					State			Z	ip			-175										SOL - Other Solid
281-201-3513															4		, ×										WP - Wipe FB-Field Blank
Sampler(s) Name	e(s) Phor	ne # Project Mana	ger		Attention	ı;									- 1	m	R										
10.	5H, Rm		Colle	etion	1		100		Blum	nber of	00000	ond Br	attlac	at	_	8260B	효효										
			Cone	CION	T		Ħ	I	1400	T T	prese	T	Aucs	T WI		×	ane,		0.17			- 1					
Accutest	Citatio / Date - Co-III dia-				1	# of bottles	7	A S	HNO3	H2SO4	NONE DI Wat	핊	0, 1		里	BTEX	Butane, Ethane, E Propane by RSK-										LAB USE ONLY
Sample #	Field ID / Point of Collection		Time	Sampled By	Matrix	Dotties	로	ž N	포	当	žā	2	¥ 2	ž iū	Ö	ш						ļ .		-			LAB USE ONLT
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T	furnaround Time ( Business days)			1	a favora	_		Data	Deli	iverab	e Inf	forma	tion								Соп	ments	/ Speci	ial Instru	ictions		
X Stan		Approved By	Accutest PM): / Date:			Commer							TRR	P			-			Ti.							
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Emerge	ncy & Rush T/A data available VIA Lab	link 09.	120							ial "B" : ial "C"						Summ	nary										
THE PARTY OF		モーノール	Sample Custody n	ust be docum	nented b	elow ea							_	_	_			delive	ry.				7-10				
Relinquished by		ite Time:	Received By:	1				\	4	linquis	hed B	Зу:		0,101		44.2			Date Ti	me:		1	red By:	-sma-			
1/ah //	C) and a second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second	2/2/12 194	/		0. Hills			/	2	1												2		iron -	-11		-
Relinquished by	y Sampler: Da	ite Time:	Received By:				/		Ro	dinquis	hed B	Зу:							Date Ti	me:		Receiv	red By:				
Relinquished by	y: Da	ate Time:	Received By:		-		_		Cu	stody	Seal #	*	N. F.ST		☐ In	ntact		Preserv	ed wher	e applic	able			On Ic	e	Coole	r Temp.
5			5													lot intac									1000 E		







## Environmental Challenges BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

WELL No.		OWNER			ADDRESS		_		DATE 1.2
	WW #7		Jeff W.	Merryman	SAMPLER	3	17 S. Ridge	Oak Ct.	1 11/30/10
SAMPLE ID	WW7- Mer	-113617	١			)13, S	H, Pm		1 1
SAMPLE TIME	1030				FIELD CO	NDITIONS/WEATHER	Pac	thy Clo	ndy 54°F
								,	/
Mall/ Cam	nlo Condition (sirolo s			Well Purgin					
Pump operation	ple Condition (circle o	no no			ıy	5	/minuto		
Owner Preser				Pumping rate	-		/minute		
		no		Volume pumpe	-	150 gallons		4	~ 6
Sampled Wat	er Treated yes	no		Clarity	_	clear	Other obse	ervations > T	fur ador
								301.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
TIME	CUMULATIVE VOLUME		рН	Conducti		DO	ORP	Turbidity	ODOR/COLOR/
24:00 hr	(gal)	°C	S.U.	/NS/cm	1)	(mg/L)	(mV)	(NTU)	REMARKS
1008	0				1000	TO THE PARTY	A SERVE	MARINE	PURGE START
1010	l	20.37		1.77		1.82	-301	4.8	Strong sorten
1012	2	20.13	8.56	1.76		1.67	-303	2.6	
1614	3	20.21	8.60	1.76	·	2.93	-307		
1016	4	20.25	8.58	1.76		1.39	-308	1.8	N.
1018	5	70.32		1.76		1.27	-309		
1020	6	20.23		1.76		1.19	-313	1.3	
1022	7		8.55	1.76		1.13	-3/1	0.7	
1024	8	20.26	8.60	1.76	•	0.97	-318	0.0	
				ļ					
		L							



Well ID:	WW #7	
Owner:	Jeff W. Merryman	
Address:	317 S. Ridge Oak Ct.	
Date:	11/301/2	

LEL -- lower explosive level
LFL -- lower flammable level
NIOSH -- National Institute for Occupational
Safety and Health
O2 -- oxygen
OSHA -- Occupational Safety and Health
Administration
ppm -- parts per million
REL -- recommended exposure limit
TWA -- time-weighted average
TLV -- time-limited value
UEL -- upper explosive level
UFL -- upper flammable level

LEL (Callbrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
Alarm Level	Alarm Level	Alarm Level	Alarm Level	
10 % LEL	19.50%	10 ppm	35 ppm	
UEL/UFL	OSHA O ₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
15%	22%	10 ppm/10 min	35 ppm	
LEL/LFL	OSHA O ₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
5%	19.50%	10 ppm	50 ppm	
Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
0	20.8	0	0	0938
0	20.7	O	1	0948
	706	0	7	0958

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	20.8	O	0	0938
-	2	0	20.7	O	1	0948
	3	0	20.8	0	2	0958
	4	0	20.8	0	2	1008
Well Head	1	0	70.9	0	0	0938
	2	0	20.7	0	l	0948
	3	0	20.8	0	2	0958
	4	0	20.4	0	2	1008
Sampling Location	1	0	20.8	Ø	0	0938
	2	σ	20.9	0	1	0948
	3	0	20.8	0	7	0958
	4	Λ	20.8	0	3	1008

DATE: 11/30/12

WELL # WW 7

NOTES TAKEN BY: 1 Bruskewith

ons: te 0935 Stort Pun ping 0937
parsed //2 hour

field populater 4008 Sampled at 1030



FED-EX Tracking #

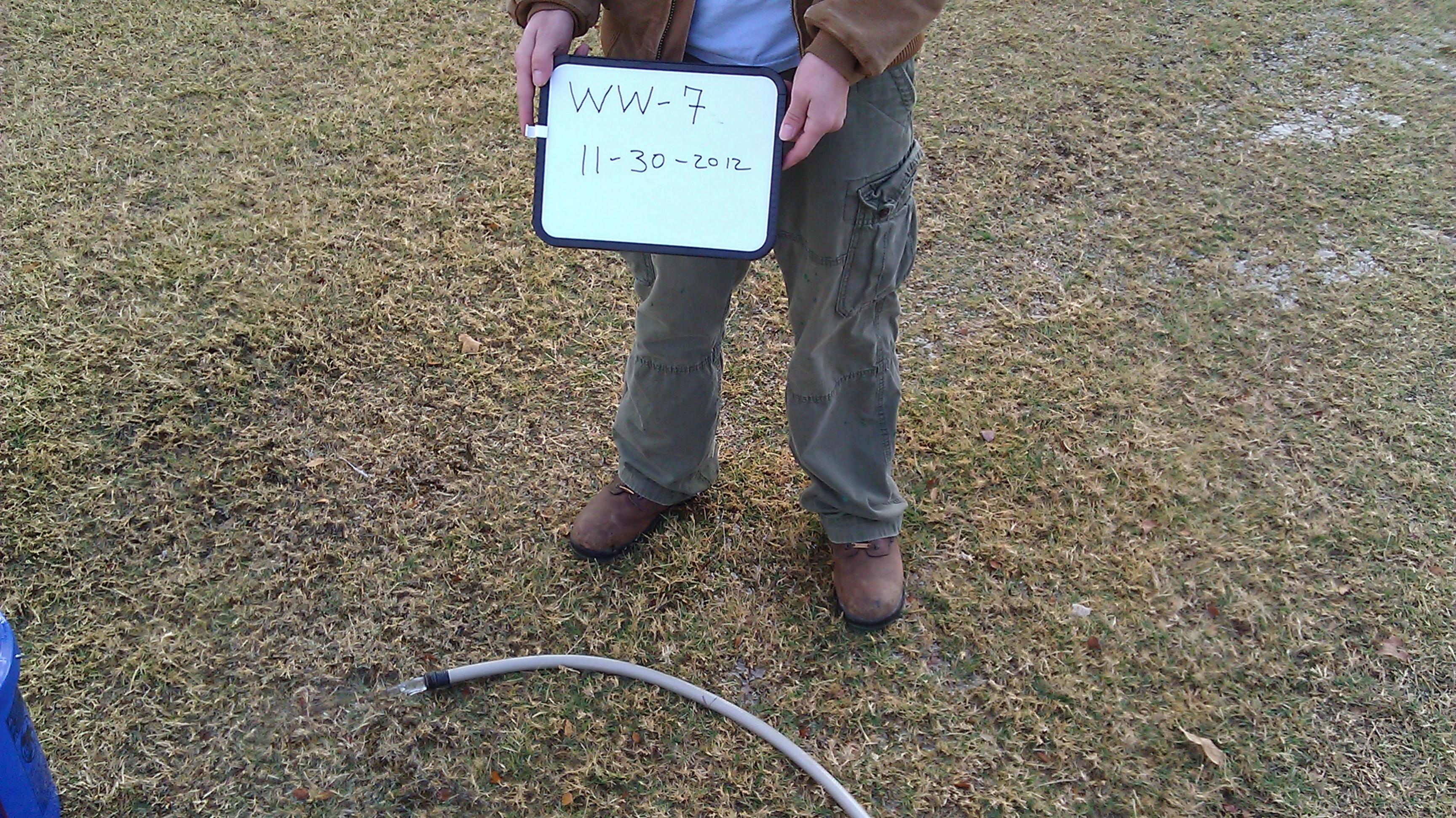
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PAGE	1	OF	
AOL		OI.	

Bottle Order Control #

10165 Harwin Dr, Ste 150 Houston, TX 77036 TEL. 713-271-4700 FAX: 713-271-4770 Accutest Quote # Accutest Job # www.accutest.com Client / Reporting Information **Project Information** Requested Analyses Matrix Codes Project Name Company Name Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175 EarthCon Consultants, Inc. Third Quarterly Well Sampling, Parker County, Texas DW - Drinking Water Street Address GW - Ground Water WW - Water 4800 Sugar Grove Blvd., Suite 390 Billing Information ( if different from Report to) SW - Surface Water Zip City State Company Name SO - Soil SL-Sludge Stafford TX 77477 SED-Sediment Street Address Project Contact E-mail Project # OI - Oil LIQ - Other Liquid Gabriela Floreslovo AIR - Air Fax # City State Phone # Client Purchase Order # SOL - Other Solid WP - Wipe 281-201-3513 FB-Field Blank Sampler(s) Name(s) Phone # Project Manager Attention: Bluskowit-Collection Number of preserved Bottles Accules Sample # Field ID / Point of Collection bottles LAB USE ONLY Date Matrix Sampled By 10607- Mar-113012 Tumaround Time ( Business days) Data Deliverable Information Comments / Special Instructions X TRRP Commercial "A" (Level 1) X Standard Approved By (Accutest PM): / Date: 5 Day RUSH Commercial "B" ( Level 2) EDD Format 4 Day RUSH FULT1 (Level 3+4) Other 3 Day RUSH REDT1 (Level 3+4) 2 Day RUSH Commercial "C" 1 Day EMERGENCY Commercial "A" = Results Only Emergency & Rush T/A data available VIA Lablink Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Surrogate Summary Sample Custody must be documented below each time samples change possession, including courier delivery. Relinquished by Samplers Relinquished By: Received By: Received By: Date Time: Date Time: Relinquished by Sampler: Received By: Relinquished By: Received By: Intact Relinquished by: Received By: Custody Seal # Preserved where applicable On Ice Cooler Temp. ☐ Not intact 

<b>Send Dat</b>	a and invoice to	× .	<i>,</i> .			( 10	
Name:	ALAN KOZNACKI	Project:	Third aw	arter W	lell Sampling	Isotech Laborate	ories, Inc.
Company	WEATHERFORD LABORATORIES	Location:	Yarker	County	Texas	1308 Parklan	d Court
Address:	5200 N SAM Houston Parenay	Sampled by:	1B	SH, R	n	Champaign, II	_ 61821
	Juite 500 Houston, TX 77086					Phone: 217-39	98-3490
Phone:	932-515-5137		J	Analy	rses Requested	Fax: 217-39	8-3493
Fax:				86	20% S. C.	www.isotechla	abs.com
Email:	9190 Hornackie @ Weatherfordlabs	, com		\$ /5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mail@isotechl	abs.com
San	nple Description		3 2 2	5/25			
Container Number	Sample Identification	Date Sampled	老家	243	A 8 8	Comments	
	WW7-Mor-113012	11/30/12	X	X	X		
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		199					
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Cha	ain-of-Custody Record						
	Signature/		- 8	Com	pany	Date	Time
Relinquish	111014		Sor	rhcon	_	12/2/12	1602
Received b	7 7						
Relinquish	ed by						
Received t	ру						
Relinquish	ed by	10					

Received by







## Environmental Challenges BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

d) i = 0

	BUSINESS SUL					- Line - Land	Ground	Water San	npling Record
WELL No.	WW #6	OWNER	Amanda M	I. Thompson	ADDRESS	299	S. Ridge	Oak Ct.	DATE 12/1/12
SAMPLE ID	WWG-Tho	-12011	 }_		SAMPLER	NAME JB. SI	1. Ru		7 - (
SAMPLE TIME	1515				FIELD CON	NAME JB, SE	Sun	, 77	5
								,	
Well/ Sam	ple Condition (circle o	ne)		Well Purgin	ng				
Pump operati	ng (es)	no		Pumping rate	_	gallons/m	inute		
Owner Preser	nt yes	> no		Volume pumpe	ed /	136 gallons			
Sampled Wat	er Treated yes	no		Clarity	_	(124/	Other obse	ervations 50	lfur dol
				,	7			0	dol
TIME	CUMULATIVE VOLUME	Temp	pН	Conducti		DO	ORP	Turbidity	ODOR/COLOR/
24:00 hr	(gal)	°C	S.U.	<b>₩</b> S/cm	n)	(mg/L)	(mV)	(NTU)	REMARKS
1458	0			BARN PAT		REMERCIAL STREET		Market By	PURGE START
1560	l	21.27	8.64	1.89		0.68	-335	1.2	Slight surful
1502	2	21.22	8.62	1.89		0.55	-344	0.9	odor
1504	3	21.41	8.59	1.87		0.45	-348	6.0	
1506	3.5	21.42	8.59	1.88		0.42	-349	0.0	
1508	4.0	21.45	8.58 8.54	1.84	•	6.40 0.39	-349	0.0	
1510	4.5	21.45	9.58	1.88		6.34	-351	1.9	-
1310	5.6	L143	7.5%	1.700		0.34	121		
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Well ID:	WW #6		
Owner:	Amanda M. Thompson		
Address:	299 S. Ridge Oak Ct.		
Date:	12/1/12		
	17		

T = i (%)

LFL – lower flammable level
NIOSH – National Institute for Occupational
Safety and Health
O2 – oxygen
OSHA – Occupational Safety and Health
Administration
ppm – parts per million
REL – recommended exposure limit
TWA – time-weighted average
TLV – time-limited value

LEL -- lower explosive level

UEL – upper explosive level UFL – upper flammable level

	(Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
	Alarm Level	Alarm Level	Alarm Level	Alarm Level	
	10 % LEL	19.50%	10 ppm	35 ppm	
	UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
	15%	22%	10 ppm/10 min	35 ppm	
	LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
	5%	19.50%	10 ppm	50 ppm	
	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
	0	209	0	٥	1428
	6	21.1	6	1	1438
	0	21.0	6		1448
	6	200		1	1464

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	0	209	0	٥	1428
	2	6	21.1	6	1	1434
	3	0	21.0	O	l	1448
	4	Ó	20.9	0	1	1458
Well Head	1	Ø	20.9	0	0	1428
	2	0	Z1.1	0	i	1434
	3	0	21.0	0	ı	1444
	4	Ŏ	20.9	0	1	1454
Sampling Location	1	0	20.9	0	0	1428
	2	O	21.1	0	1	1438
	3	O	21.0	0	1	1448
	4	0	20.9	0	1	1459

LEL

DATE: (7/1/12

WELL # WW 6

NOTES TAKEN BY: JBIUSK ew itz

Arrived onsite at 1425
Began purging at 1428
flowthrough @ 1458

Soupled @ 1515



### CHAIN OF CUSTODY

PAGE / OF /

FED-EX Tracking # Bottle Order Control # 10165 Harwin Dr, Ste 150 Houston, TX 77036 TEL. 713-271-4700 FAX: 713-271-4770 Accutest Quote # Accutest Job # www.accutest.com Matrix Codes Client / Reporting Information **Project Information** Requested Analyses Project Name: Company Name Butane, Ethane, Ethene, Isobutane, Methane, Propane by RSK-175 EarthCon Consultants, Inc. Third Quarterly Well Sampling, Parker County, Texas DW - Drinking Water Street Address GW - Ground Water WW - Water Billing Information ( if different from Report to) 4800 Sugar Grove Blvd., Suite 390 SW - Surface Water City State Company Name SO - Soil SL- Sludge Stafford 77477 SED-Sediment Street Address Project Contact Project # OI - Oil LIQ - Other Liquid Gabriela Floreslovo AIR - Air Fax # Phone # Client Purchase Order # SOL - Other Solid WP - Wipe 281-201-3513 FB-Field Blank Sampler(s) Name(s) Phone # Project Manager Attention: 5H, RM Collection Number of preserved Bottles LAB USE ONLY Field ID / Point of Collection Sample # hottles Time Sampled By Matrix 10W6-Tho-120112 Turnaround Time (Business days) Data Deliverable Information Comments / Special Instructions X TRRP X Standard Approved By (Accutest PM): / Date: Commercial "A" (Level 1) Commercial "B" ( Level 2) EDD Format 5 Day RUSH 4 Day RUSH FULT1 (Level 3+4) Other REDT1 (Level 3+4) 3 Day RUSH Commercial "C" 2 Day RUSH 1 Day EMERGENCY Commercial "A" = Results Only Emergency & Rush T/A data available VIA Lablink Commercial "B" = Results + QC Summary Commercial "C" = Results + QC & Surrogate Summary Sample Custody must be documented below each time samples change possession, including courier delivery. Date Time: Relinguished By: Received By: Received By: 272112 1600 Date Time: Received By: Relinquished by Sampler: Date Time: Received By: Relinguished By Intact Cooler Temp. Custody Seal # Preserved where applicable On Ice Relinquished by: Received By:

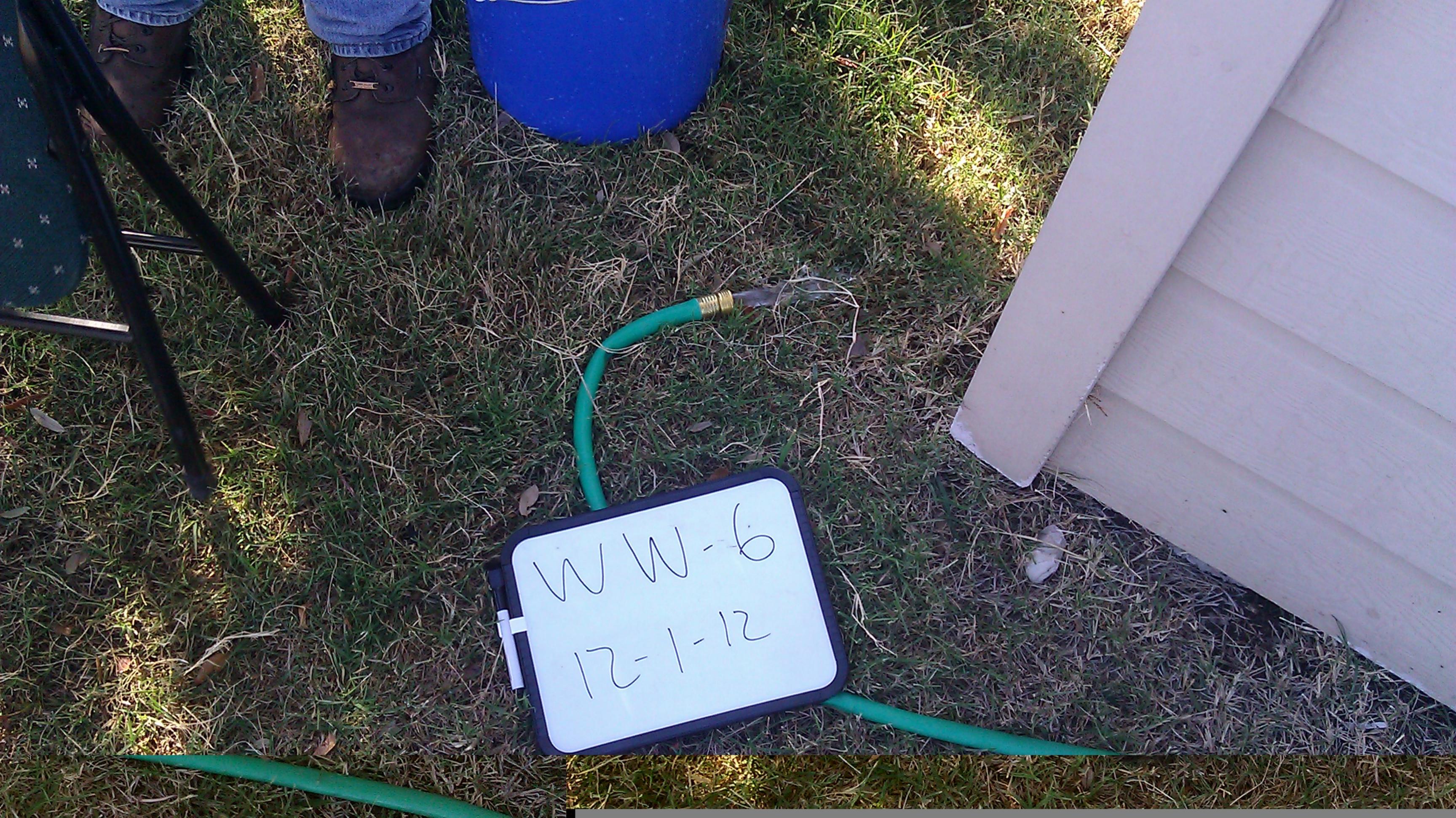
☐ Not intact

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ISOT	<b>ECH</b>	

	and Invoice to					<b>E</b>	-211201E	<u>CU</u>
	ALAN KOZNACKI	Project:	hied an	Peonty	11 Sampl.	79 1	sotech Laboratories, Inc	
Company:	WEATHERFORD LABORATORIES	Location:	Parker	County	, Texas	<u> </u>	1308 Parkland Court	
	5200 N SAM Houston Parkway	Sampled by:	JB,	SH, P	n_		Champaign, IL 61821	
	ruite Soo Houston, TX 77086		1				Phone: 217-398-3490	
Phone:	932-515, 5137		j	Analys	es Requested	3	Fax: 217-398-3493	
Fax:			<b>/</b>	87.7	Dn3:	رب.	www.isotechlabs.com	
Email:	919n Hornackie @ Weatherfordlabs	com	/.	\$ 200	A Veg	\$\\$^	mail@isotechlabs.com	
	ple Description		3 8	5 2 1 °				<u>.</u>
Container Number	Sample Identification	Date Sampled	E & &	13 3	3 8 18	Com	ments	
	ww6-Tho-120112	12/01/12	X	X	又			
	5/7	2				¥		
	14	2						
	-						61	
	*							
Cha	in-of-Custody Record							

Signature	Company	Date	Time
Relinquished by LIBrush	Earthcon	12/2/12	1600
Received by			
Relinquished by			
Received by			
Relinquished by			
Received by			









## Environmental Challenges BUSINESS SOLUTIONS ®

**Groundwater Sampling Record** 

WELL No.	WW #2	OWNER	Michell	e Purdue	ADDRESS	756	Lake Cou	ıntry Dr.	DATE 11/30/12
SAMPLE ID	WWZ - PUZ.	- 113017			SAMPLER NAM	ME JO SH	- Kn		/ /
SAMPLE TIME	1525		1		FIELD CONDIT	ONSWEATHER	Sun	n. 7:	30/=
	lected extron		re for	KS[A	SP				
Well/ Sam	ple Condition (circle o	ne)		Well Purgir	ng 🎤	-			
Pump operati	ng yes	no		Pumping rate		gallons/m	inute		
Owner Preser	nt yes	no		Volume pumpe	ed <b>Z</b> o	gallons			
Sampled Wat	ter Treated yes	no		Clarity		ew.	Other obse	rvations \$0	Hu/
TIME 24:00 hr	CUMULATIVE VOLUME (gal)	Temp °C	pH S.U.	Conducti		DO (mg/L)	ORP (mV)	Turbidity (NTU)	ODOR/COLOR/ REMARKS
150Ce	0		THE PHONE	ST. JUNE					PURGE START
1509	1-5	21.43	8.70	1.23		1.23	=244	44.9	Sight sulfur
1512	3.0	21.56	6.07	1.25		1.07	- 280	53.4	
1515	4.5	21.54	8.64	1,25		0.94	-289	19.8	
1519	4.0	21.59	8.6de	1.25		0.59	-303	11.5	
1521	7.5	21.60	8.69	1.24		0.58	-312	2.0	
1524	9.0	21.58	8.68	1.24	•	0.48	-320	15.2	
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## Environmental Challenges BUSINESS SOLUTIONS®

Well ID:	WW #2	
Owner:	Michelle Purdue	
Address:	756 Lake Country Dr.	
Date:	11/30//2	

LEL — lower explosive level
LFL — lower flammable level
NIOSH — National Institute for Occupational
Safety and Health
O2 — oxygen
OSHA — Occupational Safety and Health
Administration
ppm — parts per million
REL — recommended exposure limit
TWA — time-weighted average
TLV — time-limited value
UEL — upper explosive level
UFL — upper flammable level

LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
Alarm Level	Alarm Level	Alarm Level	Alarm Level	
10 % LEL	19,50%	10 ppm	35 ppm	
UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
15%	22%	10 ppm/10 min	35 ppm	
LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	
5%	19.50%	10 ppm	50 ppm	
Value	Value	Value	Value	Time

		5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
Background	1	ථ	21.1	0	7	1503
	2	٥	21.1	0	3	1508
	3	ن	21.1	٥	3	1513
	4	0	21.1	0	3	1518
Well Head	1	0	21.1	O	3	1503
	2	0	21.1	O	7	1508
	3	O	Z1.1	0	3	1513
l	4	U	21.1	O	3	1518
Sampling Location	1	0	21.1	0	3	1503
	2	•	21.1	U	3	1508
	3	6	21.1	0	3	
	4	0	21.1	0	3	1518

### **CONFIDENTIAL / ATTORNEY WORK PRODUCT**

DATE: M - 30 - 1

WELL # WW 2

NOTES TAKEN BY: JB rus Kewitz

onsite 1342 tratalling volue on well head fursed well ~ 45 min Low flow @ 1506-1524 So-pled @ 1525



### CHAIN OF CUSTODY

FED-EX Tracking #

PAGE / OF /

	Laboratories			TEL. 713	3-271-4700		713-2								Accute	est Quote	#			===	Acc	utest Jo	ob#				
	Client / Reporting Information			Project	Informa		om			V V				15,0			-	Re	que	ste	ı A ı	alv	ses	,			Matrix Codes
Earth(	ny Name Con Consultants, Inc.		ly Well Samplir													hane,											DW - Drinking Wate
	Address Sugar Grove Blvd., Sulte 390 State	Street Zip City		State	Billing Is Company	nformation y Name	on ( if	differ	ent fr	om R	eport	t to)				Ethane, Ethene, Isobutane, Methane,											GW - Ground Water WW - Water SW - Surface Water SO - Soil SL- Słudge
	rd TX 77 Contact E-mail	Project #			Street Ac	ldress										e, Isobu											SED-Sediment OI - Oil LIQ - Other Liquid
Phone <b>281-2</b> 0	# Fax # 01-3513	Client Purchase	Order#		City					State		192	Zip			e, Ethen	2112										AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank
Sample	or(s) Name(s)  SHRM Pt	none # Project Manager	Collec	tion	Attention		1		Numb	er of p	reserv	ed Bottl	les		8260B	, Ethan	i i					1					
Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	끞	ZANAOH	HNO3	H2SO4	DI Water	MEOH	NaHSO4	ENCORE	BTEX 8	Butane, E	P C C										LAB USE ONLY
	WW2-Pui-113012	11/30/17	1525	JB	(7W)	18	X								X	X						4					
	(MS/MSD)						Н					Н	+		-		+-	+	+	+	+	-			-	1124	
							H	+		1	-			+	+-	+	-	+	+	+	-				-		
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	Tumaround Time ( Business days)		4.000 / 0-4			Commer		11150		172		ormatie					1.	- (1		C	omme	nts / S	Specia	Instru	tions	Do	= harris
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## Environmental Challenges BUSINESS SOLUTIONS®

**Groundwater Sampling Record** 

WELL No.	WW #1	OWNER	Rodney & G	eraldine Wells	ADDRESS	899	Lake Cou	untry Dr.	U-30-12
SAMPLE ID	Wed 1 - Wel-	117017	1.11		SAMPLER	NAME SH N	3, Pm		
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Pump operat	ing yes	no		Pumping rate	_	gallons/m	inute		
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## Environmental Challenges BUSINESS SOLUTIONS®

Well ID:	WW #1	
Owner:	Rodney & Geraldine Wells	
Address:	899 Lake Country Dr.	
Date:	11-30-17	

LEL - lower explosive level
LFL - lower flammable level
NIOSH National Institute for Occupation
Safety and Health
O2 oxygen
OSHA - Occupational Safety and Health
Administration
ppm – parts per million
REL recommended exposure limit
TWA time-weighted average
TLV time-limited value
UEL upper explosive level
UFI — upper flammable level

LEL (Calibrated for Methane) %	O ₂ %	H₂S ppm	CO ppm	Time of Reading
Alarm Level	Alarm Level	Alarm Level	Alarm Level	
10 % LEL	19.50%	10 ppm	35 ppm	
UEL/UFL	OSHA O₂ Enriched	NIOSH REL-TWA	NIOSH REL-TWA	
15%	22%	10 ppm/10 min	35 ppm	
LEL/LFL	OSHA O₂ Deficient	OSHA PEL-TWA	OSHA PEL-TWA	Caraca
5%	19.50%	10 ppm	50 ppm	
Value	Value	Value	Value	Time

	- 1	5%	19.50%	10 ppm	50 ppm	
Location & Coordinates	#	Value % LEL	Value %	Value ppm	Value ppm	Time 24:00 hr
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	3	0	2.3	۵	0	0805
	4	0	21.1	0	1	0815
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### **CONFIDENTIAL / ATTORNEY WORK PRODUCT**

DATE: 11/30/12

41 1

WELL # WW 1

NOTES TAKEN BY: OBruske witz

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Setting up
Water on@ 0741
0818 Persod Well
0839 Collect Porometers
0840 Somple Well



### CHAIN OF CUSTODY

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Bottle Order Control #

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Name: ALAN KORNACKI Project:	Third Quarter Well Sampling	Isotech Laboratories, Inc.

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Fax:			6.	8 2 2 C	www.isotechlabs.com
Phone:	932-515, 5137	140		Analyses Requested	Fax: 217-398-3493
	Juite Soo Houston, TX 77086				Phone: 217-398-3490
Address:	5200 N SAM Houston Parkway	Sampled by	y: 18,5H	R.M.	Champaign, IL 61821
	V: WEATHERFORD LABORATORIES			unty, Texas	1308 Parkland Court
Name.	UNIO LOW WHICH	Project:	AND OWELL		Isotech Laboratories, Inc

**Sample Description** 

Container Number	Sample Identification	Date Sampled	इंड हैं दें हैं	S & S	Comments	
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**Chain-of-Custody Record** 

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# QUARTERLY RESIDENTIAL WELL SAMPLING WORK PLAN PARKER COUNTY, TEXAS

### 1.0 PURPOSE

Range Production Company (Range) has engaged EarthCon Consultants, Inc. (EarthCon) to collect water samples from a group of 20 residential water wells, as identified in **Table 1** and **Figure 1**, during one year by conducting four sampling events at three-month intervals. If access to the wells is allowed by the landowners, water samples will be collected for laboratory analyses. The purpose of this Work Plan is to describe the protocols to be implemented by EarthCon during such sampling activities.

### 2.0 FIELD METHODOLOGIES

### 2.1 Health and Safety Considerations

Field work will be conducted in Level D personal protective equipment (PPE) and in accordance with a Health and Safety Plan (HASP).

If an unsafe condition exists at any time, the field crew will leave the area and contact the responsible Range representative to assess the situation.

### 2.2 Well Water Sampling

Provided access is obtained from the landowners, well water samples will be collected prior to softening or other modification/treatment of the water stream from existing sampling ports (e.g., faucets, spigots, etc.). Existing domestic water well infrastructure will not be modified in any manner. Typical well water sampling methodologies are presented in **Appendix A**. Depending on actual field conditions encountered, these procedures may be modified to enable sampling to proceed; changes, if any, will be noted in the field records.

In following a typical USEPA-Contract Laboratory Procedure (CLP) protocol of 20% additional samples for quality control purposes, the following samples will be included for each quarterly event: one well water duplicate (a well will be randomly selected for this purpose), trip blanks, one matrix spike, one matrix spike duplicate, and one equipment blank.

All samples will be labeled using appropriate identifiers that can be cross-referenced to the well location and ownership, or type of quality control sample. The convention that will be used is as follows:

### Water Well Samples:

WWW##-ZZZ-mmddyy

WWW##: Water well water sample; well number as designated in Table 1



- ZZZ: First three letters of well owner's last name
- mmddyy: Date of sample collection (month, day, year format)

### **Quality Control Samples:**

QQ-mmddyy or QQQ-mmddyy

 QQ or QQQ will indicate type of sample: DUP for field duplicate; TB# for trip blanks which will be numbered sequentially; and EB for equipment blank.

Matrix spike (MS) and matrix spike duplicate (MSD) samples will be identified on the chain-of-custody form as additional volume for a randomly selected water well sample.

The samples will be packaged per laboratory instructions and shipped via common carrier or courier under chain-of-custody documentation to an independent laboratory for analyses (see **Analytical Plan** below).

#### 3.0 ANALYTICAL PLAN

Water samples will be submitted to Accutest Laboratories (Accutest), an independent Texas-certified laboratory, for analysis of the following constituents of concern (COC), using the following analytical methods, with standard turnaround time:

- Benzene, Ethylbenzene, Toluene and Xylenes (BTEX), via EPA's SW846-8260 method.
- Dissolved Butane, Ethane, Ethene, Isobutane, Methane and Propane, via method RSK-175.

Water samples will also be submitted to Isotech Laboratories, Inc. (Isotech), of Champaign, Illinois, an independent specialty laboratory, using Isotech approved sampling materials, for the following isotopic and compositional analysis of dissolved gases.

- Molecular composition of hydrocarbon (HC) gases (C1-C5 compounds; C6+ component) and non-HC gases (e.g., N₂; O₂; Ar; CO; CO₂; H₂S; He; H₂).
- C and D isotopic composition of Methane; Ethane, and Propane.

A Range consultant will coordinate specific sample analysis with Isotech, as well as timely delivery of sampling materials.

### 4.0 DATA REPORTING

Upon receiving final data from the laboratories, EarthCon will document implementation of quarterly sampling activities in accordance with this work plan, in a brief letter report (in electronic format), supported by well-specific field data logging forms.



## TABLE 1 RESIDENTIAL WATER WELLS



# Table 1 Residential Water Wells Parker County, Texas

#	Water Well (WW) Number	Property Owner
1	WW 1	Rodney & Geraldine Wells
2	WW 2	Michelle Perdue
3	WW 4	Chandra D. Abbott
4	WW 5	Brent A. Maudlin
5	WW 6	Amanda M. Thompson
6	WW 7	Jeff W. Merryman
7	WW 9	John Stites
8	WW 10	Devyn Hayley
9	WW 11	Gail Sanders
10	WW 13	Tom Struths
11	WW 14A	Stephen & Carol Hurst
12	WW 15	Stephen & Carol Hurst
13	WW 18	Thomas & Elizabeth Struths
14	WW 19	Joseph & Rebecca Williams
15	WW 20	Dennis Huffman
16	WW 21	Kirk & Brenda Van Newkirk
17	WW 22	Timothy & Sheryl Simpson
18	WW 23	David & Gloria Husby
19	WW 24	Pamela Smith
20	WW 25	Jeff Mathews

Note: Property owner information as of January 2011.



## FIGURE 1 WATER WELL LOCATIONS





### LEGEND:

- Residential Well

Source: Google Earth dated 03/2008.



Environmental Challenges BUSINESS SOLUTIONS

Figure 1 Water Well Locations Quarterly Residential Well Sampling
Work Plan
Parker County, Texas May 2012

## APPENDIX A TYPICAL SAMPLING STANDARD OPERATING PROCEDURES

#### TYPICAL WATER WELL SAMPLING PROCEDURES – ENVIRONMENTAL SAMPLING

### **Purging Procedures**

When water samples are collected from wells, either by mechanical or hand-pumping, the wells must be purged before the sample is collected. Purging is intended to result in the collection of water representative of the formation, not the standing water in the well, casing, pipes, or holding tanks. Approximately one volume of water in the well casing and storage tank (if present) will be evacuated (a 15 minute period is usually sufficient for private wells). After purging for about 15 minutes, the pH, conductivity, turbidity, and temperature will be measured at approximately 5 minute intervals until constant values are obtained, at which time the well will be considered adequately purged and ready for sample collection. All measurements and times will be recorded in a field log book or purging/sampling forms.

#### **Water Level Measurements**

A depth to water measurement will be made, but only if the well is readily accessible and collecting the measurement does not run the risk of entangling the water level probe on downhole pumping equipment. The measurement will be made with a decontaminated electronic water-level meter. The depth to water will be recorded on a field form/log book.

### **Sampling Location**

Taps selected for sample collection should be located as close to the well as possible and upstream of any water treatment system. If a sampling port is not available at the well, the nearest outdoor faucet will be used. If no outdoor faucets can be used, an indoor faucet will be used.

A smooth-flaring water stream at moderate pressure without splashing should be achieved prior to sampling. Then, without changing the water flow which could dislodge some particles in the tap, the samples may be collected.

### Sample Collection

Hold the bottle cap in one hand and the bottle in the other, placing it under the water stream. Exercise care not to touch the inside of the cap, and avoid contaminating the sample bottle with fingers or permitting the faucet to touch the inside of the bottle.

Disposable gloves will be worn and exchanged between sample locations. Water samples will be collected in pre-cleaned laboratory containers, with preservatives as required by the analytical method, and labeled to identify sample location and required analyses. The samples will be placed in ice in a cooler provided by the laboratory. Chain of Custody protocols will be maintained at all times while the samples are being transported to the laboratory.

### Collection of Ground Water Samples from Domestic and Municipal Water Wells for Dissolved Gas Analysis

These instructions are based on sampling protocol created by Anthony Gorody, adopted by the Colorado Oil and Gas Conservation Commission, and are reproduced here with their permission.

The basic technique is to fill a white 5 gallon bucket with source water and then fill the 1 liter sample collection bottle fully immersed in the bucket.

When sampling from a pressurized water system, it is recommended to use an outdoor spigot or other source which bypasses any water treatment systems (i.e. water softeners, etc.).

### To collect a sample for isotopic and chromatographic analysis from water that is not effervescent, using 1L bottle with septum cap:

After purging the well, fill the 5 gallon bucket with water. Attach a nozzle and 12" length of ¼ inch diameter tubing to the end of the 5/8 inch hose connected to a faucet. Make sure that the flow rates through the tubing are low. Remove the cap of the 1 L bottle and fill it with water. Once the bottle filled, immerse it in the 5 gallon bucket full of water, keeping the tubing at the bottom of the bottle. Place the bottle at the bottom of the bucket under a head of water, and keep water flowing at a low rate until another 2 volumes of water have been displaced from the bottle. Then slowly lift the tubing out of the bottle and immediately cap it under water. No air should be allowed into the 1 L bottle. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight.

### To collect a headspace gas sample from an effervescent water well:

Fill the bottle with water. Submerge the bottle into the 5 gallon bucket filled with well water and invert it. Insert the ¼ inch tubing into the bottle, increase the flow rate to 2-3 gpm and allow the bubbling gases to displace water in a headspace until 1/4 to 1/2 of the water in the bottle has been displaced. Seal the container under water with the septum and screw cap, tighten it securely. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight.

Please note Isotech's receiving hours of **Monday thru Friday** 8:00 am to 4:30 pm. Ship samples to:

Isotech Laboratories, Inc. 1308 Parkland Court Champaign, IL 61821

These instructions have been provided to simplify the collection of samples for dissolved gas analysis. Although we try to foresee and avoid problems in the field, it is never possible to predict every situation. If you encounter any difficulties, or if any additions or changes in these instructions would be beneficial, please let us know.

Isotech Laboratories, Inc. makes no warrantee as to the applicability and/or safety of the procedures described herein.

## Table 1 Quarterly Residential Well Sampling Project Parker County, TX

### Third Quaterly Sampling Event - November/December 2012 Summary of Samples Collected

Water Well Number (WW#)	Property Owner	Sample Collection Date	Water Condition	Sample Field Identification	Accutest Laboratory Package/Sample Identification #	Comments
WW1	Rodney and Geraldine Wells	11/30/2012	Un-treated	WW1-WEL-113012	TC20872	
WW2	Michelle Perdue	11/30/2012	Un-treated	WW2-Pur-113012	TC20890	Volume for MS/MSD collected (Accutest)
WW6	Amanda M. Thompson	12/1/2012	Un-treated	WW6-Tho-120112	TC20878	
WW7	Jeff W. Merryman	11/30/2012	Un-treated	WW7-Mer-113012	TC20871	
WW10	Devyn Hayley	12/2/2012	Un-treated	WW10-Hay-120212	TC20882	Collected at tank inlet; therefore, sample for analysis at Isotech cannot be collected
WW11	Harry and Margaret Anderson	12/1/2012	Un-treated	WW11-And-120112	TC20874	
WW13	Tom Struths	12/2/2012	Un-treated	WW13-Str-120212	TC20886	
WW14A	Stephen and Carol Hurst	12/2/2012	Un-treated	WW14A-Hur-120212	TC20883	
WW15	Stephen and Carol Hurst	12/2/2012	Un-treated	WW15-Hur-120212	TC20887	
WW18	Thomas and Elizabeth Struths	12/2/2012	Un-treated	WW18-Str-120212	TC20885	Collected at tank inlet; therefore, sample for analysis at Isotech cannot be collected
WW19	Joseph and Rebecca Williams	12/1/2012	Un-treated	WW19-Wil-120112	TC20877	
WW20	Dennis Huffman	12/1/2012	Un-treated	WW20-Huf-120112 Dup-120112	TC20875 TC20873	Purged well through sprinklers at Mr. Huffman's request Duplicate collected (Accutest)
WW21	Kirk and Brenda VanNewkrik	11/30/2012	Treated	WW21-Van-113012	TC20879	
WW22	Timothy and Sheryl Simpson	12/1/2012	Un-treated	WW-22-Sim-120112	TC20876	Found spigot broken; could not connect garden hose. Used 3/8" tubing inserted into spigot opening.
WW24	Pamela Smith	11/30/2012	Un-treated	WW24-Smi-113012	TC20880	
WW25	Jeff Matthews	12/2/2012	Un-treated	WW25-Mat-120212	TC20881	
	Trip Blank	12/2/2012		TB1-1202-12		
	Equipment Blank	12/2/2012		EB1-120212	TC20889	
	Equipment Blank	12/2/2012		EB2-120212		
	Trip Blank	12/2/2012		TB2-120212	TC20888	

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### 2.0 FIELD ACTIVITIES

The EarthCon field crews mobilized to the project area on Thursday November 29, 2012, and commenced preparations for sampling, including acquiring sampling materials and calling the landowners to confirm the visits. Sampling occurred from Friday November 30, 2012 through Sunday December 2, 2012, and was performed in general accordance with protocols presented in detail in the May 2012 Work Plan. Field activities, including packing and demobilization, culminated on Monday December 3, 2012. **Table 1** provides a summary of the samples collected during the third quarterly sampling event.

The field work was conducted in Level D personal protective equipment (PPE), in accordance with a site-specific Health and Safety Plan (HASP), and after health and safety meetings were conducted at the start of each day. Ambient air readings demonstrated a safe environment with no health or safety concerns. No health or safety incidents occurred during EarthCon's sampling activities.

In general, well water samples were collected from existing sampling ports (e.g., spigots, tank inlet pipes, etc.) prior to softening or other modification/treatment of the water stream, using typical protocols presented in Appendix A of the May 2012 Work Plan. At the property owner's request, Ms. Purdue (WW2), and as approved by Range, a new spigot was installed at the well head for sampling purposes on November 30, 2012; a photograph of this installation is included in the well-specific report in **Attachment 2**.

In a few instances, as noted in **Table 1**, pre-treatment water samples could not be obtained due to the manner in which the well and water treatment infrastructure was constructed (i.e., piping from the wellhead was hard-plumbed to a water treatment/softening tank, or there was no ready access to pre-treated water). In such cases, treated water was collected from existing post-treatment spigots, or samples were collected inside treatment tanks at the inlet. In addition, in the cases of wells WW10 and WW18, where samples were collected from a tank inlet, the sample for analysis at Isotech could not be obtained as there was no room to install a hose so that the laboratory-prescribed sampling protocol could be implemented. Additional well water samples were collected for quality control purposes; as shown in **Table 1**, these samples consisted of: a field duplicate (at WW20); a matrix spike/matrix spike duplicate pair (at WW2); two equipment blanks, and two trip blanks (one for each shipped cooler containing samples for analysis of volatile constituents at Accutest).

Samples were labeled, packaged per laboratory instructions, and shipped to Accutest and Isotech via common courier under chain-of-custody documentation. The labels and chain-of-custody forms identified the analyses required for each sample, as established in the May 2012 Work Plan.

Pertinent field observations and measurements were recorded on well-specific field forms, and photographs were taken at each sampling location. The completed field forms and photographic records are grouped per well and presented in **Attachment 2**.



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### 3.0 LABORATORY COORDINATION

EarthCon confirmed receipt of samples at Accutest and Isotech; in addition, for samples submitted for analysis at Accutest, the sample receipt forms were reviewed to verify that samples were received in good condition and were correctly logged for the appropriate analyses.

EarthCon's laboratory coordination activities concluded by verifying that samples submitted to Accutest were analyzed within holding time and that analytical results were provided as requested; analytical data packages and summary tables were directly submitted to Range via electronic mail by Accutest, and are included in **Attachment 3** for ease of reference.

### 4.0 CLOSING

EarthCon appreciates the opportunity to provide environmental consulting services to Range Production Company. Please do not hesitate to contact the undersigned at (281) 240-5200, if you have any questions regarding this report.

Sincerely,

EarthCon Consultants, Inc.

Gabrietaloxo

Gabriela P. Floreslovo Sr. Project Engineer

J.D. Haines, LPG (IN) Principal Geologist

**Enclosures:** 

Table 1 – Summary of Samples Collected – November/December 2012

Attachment 1 – Copy of April 2012 Work Plan

Attachment 2 – Well-Specific Field Forms and Photographic Records

Attachment 3 – Well-Specific Data Packages and Summary Tables (as submitted by Accutest)



# Table 1 Summary of Samples Collected November/December 2012

